THE PAPER TRADE JOURNAL.

"The Consumption of Paper is the Measure of a People's Culture."

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Trade Topics.

Improvement in Paper Machines.

The invention herewith illustrated is intended to provide a simple means for thoroughly intermingling, mixing and crossing the fibre of the pulp, and also for mixing whatever coloring matter, chemical or other substance which might be required with the pulp while on the web as it passes through the gates or sluices, and the improvement consists, primarily, of a rotating wheel consisting of blades secured to arms upon a shaft supported by brackets over the wire cloth, preferably between the gates or sluices, and caused to revolve in contact with the pulp upon the wire cloth to thoroughly agitate and mix the pulp just as it settles thereon.

Figure 1 is a plan of a portion of the gate or sluice end of a paper making machine of the Fourdrinier pattern embodying this pattern; Fig. 2 is a partial side elevation of the parts shown in Fig. 1; Fig. 3 is a front elevation of a stirring reel and its immediate connections for adjusting, supporting and operating the same; Fig. 4 is a sectional detail at the middle of the reel, and Fig. 5 a front elevation of the reel-supporting brackets and device for raising and lowering the reel in said brackets. Fig. 6 shows the driving and adjusting gear for operating the reel. Fig. 7 is an enlarged sectional elevation of the reel, similar to Fig. 4, showing the hub plate for supporting the blades of the reel, and Fig. 8 is an enlarged sectional detail of the journal bearing, guide bracket and adjusting screw of the reel shaft.

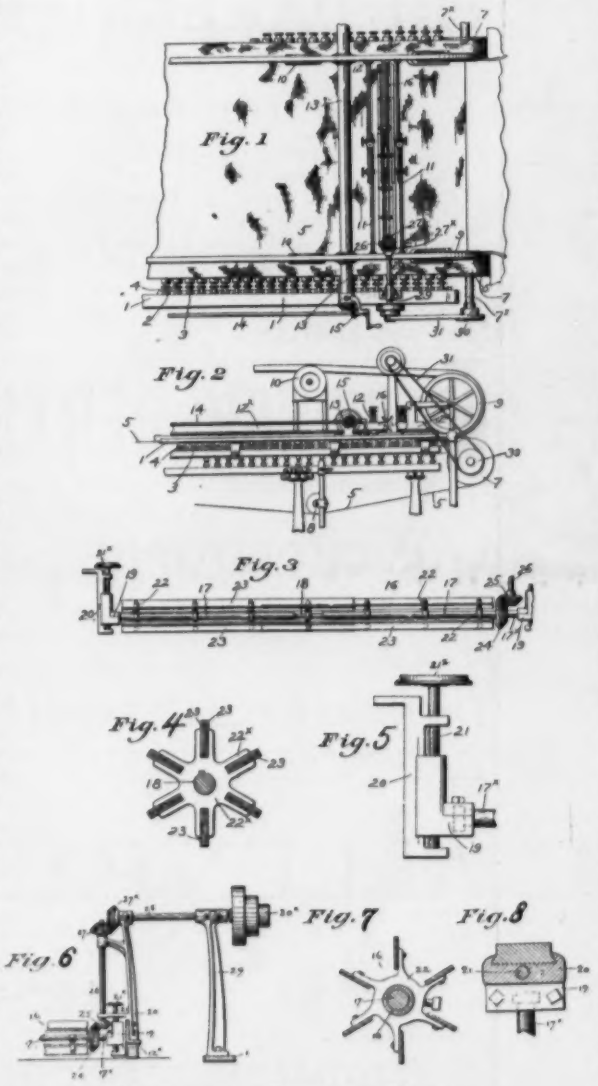
The side rails, 1, of the table frame support the usual tube rolls, 2, having steel journals, 3, supported in separate bearings, 4, these rolls supporting the wire cloth, 5, which passes around the couch roll at the delivery end, around a breast roller, 7, at the sluice or gate receiving end, and around smaller rolls, 8, adjustably supported upon the frame standards beneath the table to provide for the adjustment of the wire cloth and also insure its return movement from the couching roll to the breast roll in the usual manner. The deckles are supported on end pulleys, 9, and intermediate small rollers, 10, and the gates or sluices, 11, are supported by and move with the standards, 12, and side plates, 12×, of the deckle pulleys and rollers, and are also adjustable in the usual manner, by means of a screw shaft, 13, crank shaft, 14, and mitre gears, 15, to regulate the width of the web to be carried by the wire.

The reel may be constructed in any suitable manner, preferably as follows: The reel, 16, has a three-part shaft, 17 18, the end journals, 17×, of which are carried in bearing blocks, 19, in vertically adjustable brackets, 20, at the ends thereof by means of a screw shaft, 21, and handle, 21×, supported vertically upon each of the brackets, and the brackets are secured to and adjustable laterally across the table with the side plates, 12×, of the deckle supporting roller standards. The reel, deckles and sluices thus supported and connected are all conjointly adjusted by turning the crank shaft, 14, until they conform to the width of paper to be made.

The reel shaft consists of a middle section, 18, which telescopes in end sections 17, and each of the sections has a suitable number of hub plates, 22, carrying radial slotted arms to receive and support blades 23, made in pairs and dovetailed together to slide one upon the other at their inner overlapping ends, as shown in Fig. 4. The blades are fixedly secured by bolts or rivets to the hub plates, 22, of the end sections, 17, of the reel shaft, and slide freely in the slotted arms of the hub plate, 22×, of middle section, 18, of said shaft, thus providing simple and effective means whereby the reel may be adjusted in length to conform to the adjustment of the sluices and deckles. The reel is driven in any suitable manner, as, for example, by means of spur wheels, chain and sprocket, or, as in this case, mitre wheels, 24 25, secured, respectively, upon the end of the reel shaft 17, and the lower end of a vertical shaft, 26, supported on the brackets 20, the upper end of the vertical shaft being geared to a horizontal shaft, 28, by mitre wheels, 27 27×, the shaft being adapted to move endwise in the mitre wheel 27×, and on its bearing upon the upper end of bracket 20, and also supported in a bracket, 29, secured to the side rails, 1, of the frame. A cone pulley on the outer end of the shaft, 28, and a corresponding reversely disposed cone pulley, 30, on the corresponding end of the breast roller shaft, 7×, are connected by a belt, 31, by which means the reel may be driven at varying speeds. The belt 31 may be twisted when it is required to reverse the direction of rotation of the reel.

The pulp passes through the strainers stirrers and separating plates in the usual manner on the wire cloth (which latter, with this attachment, need not receive a shaking motion), the thickness of the pulp upon the screen being gauged by the sluices between which the reel is suspended and revolves, as described, either in the same or in an opposite direction to that of the movement of the web of pulp. The reel is so adjusted vertically that its blades will be brought in sufficient contact with the pulp to thoroughly agitate the latter and cause the fibres of the pulp to be thoroughly commingled, intertwined, and more evenly distributed, their natural tendency being to lie in parallel lines. The agitation and intertwining of the fibres due to the shaking movement of the machine in the Fourdrinier type may, it is said, be secured in an equally effective manner by the simple reel attachment described without shaking the wire cloth and the entire breast roll end of the machine, as heretofore required, thereby greatly reducing the original cost, the cost of maintenance, and the power required to operate such machines.

If desired this improvement can be used with the usual shake.



IMPROVEMENT IN FOURDRINIER MACHINES.

Kinks for the Machine Tender.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY JAMES F. HOBART.

It is frequently necessary in making a very heavy sheet on a cylinder machine to couch a very heavy layer of fibre. Frequently, when this must be done, the machine tender is troubled by the fibre slipping back off the mold. A remedy for this is to place the roll very low in the vat, submerge nearly all of it, thereby decreasing the angle at which the stock must leave the water. Usually there is little danger of stock slipping while it is under water; however, sometimes it will do it by peeling off, running away around under the mold and then sticking on again, making a kind of "roly-poly" paper, which is particularly undesirable. Sometimes to prevent this it is necessary to carry a comparatively thin solution of stock in the water and give a very heavy draught in the cylinder. At other times it is necessary to carry very heavy stock and a light draught. The machine tender can take his choice between the two methods, using any graduation between them which gives the best results with that particular stock.

When the stuff persists in slipping back, even with the mold very low in the vat, resort may be had to a felt roll which is placed wholly or partly underneath the surface of the water, carrying the felt down from 2 to 6 inches below the surface, and practically running the coating of fibre underneath the felt before it emerges from beneath the surface of the water in the vat. The first time a man sees this arrangement he will say, "That is no good; the stuff will surely stick on the roll and form up there until it presses the felt." This does not prove so in practice. It is prevented by water, which squeezes out of the fibre as it passes up over the top of the mold underneath the felt. This water runs down upon the roll, passes out of the felt at the ends of the roll, thereby forming a decided, although very slight, current in that direction, which effectually prevents the working in of any stock. This method of lowering down the top felt in connection with lagging up the sides of the vat so that the mold is nearly all under water will enable a machine tender to get off an extra heavy thickness of fibre, even of the most obstinate stuff that it is possible to run. Even slippery, sliding sulphite may be run to a great thickness in this manner without danger of dropping off.

In handling obstinate stuff, particularly of an earthy nature or heavily loaded with earthy substances, trouble is frequently made by having the stuff pack down in the bottom of the stuff spouts, often filling them completely. Trouble of this kind has been got rid of by putting a water pipe into the stuff spout, and arranging fire pump connections with that water pipe. A vigorous stream of water issuing from a 4 inch pipe under a head of from 100 to 150 pounds will make short work of a very serious obstruction of this kind. In some kinds of stuff the ordinary pump does not work. It is necessary to put in an ordinary conveyor link belt, a box being used, which carries the pump to the height desired, from which it runs back through open sluices to the machine. This method, in connection with the water pipe above described, especially if placed in large spouts, 24 to 30 inches square, will enable almost any kind of material from which paper can possibly be made to be handled quickly, with considerable ease.

The speed combs back of the machine frequently give trouble by the climbing of the belt toward the large ends of the combs. This trouble principally occurs when only one belt guide is used. When speed combs first came into use, several years ago, two guides were used, one close to each pulley. Then one guide was dispensed with, the remaining one doing the work. It will do it provided the distance between pulleys is not too great. When this distance exceeds a certain multiple of the width of belt, the latter is sure to climb toward the big end of one of the combs. The only remedy is to put in another guide; particularly when the machine room is very high this trouble is experienced. Then a guide should be placed as close to each belt as possible, and the two be connected together by means of link belting or some other positive drive.

The fire pump connection mentioned in a previous paragraph is not to be despised, not alone for stuff spouts, but it works equally well in sewers, drains, spring water pipes and all other conduits liable or likely to stop up. All stuff pipes, and spouts in particular, are quickly relieved when connected with a good, heavy fire surface. It does not cost much to make such a connection, and in case of accident or emergency it is invaluable.

Sometimes a good deal of trouble is caused back of the machine by a weak link in the belt transmission. Imagine, for instance, a cutter or winder, the reels, the slitters and the reel changers, aggregating 12 inches of belt width, running at 100 revolutions per minute, all driven from a countershaft, which in turn receives its power through a 6 inch belt, driven at seventy-five revolutions per minute. The lack of proportion is obvious, and its effect is obvious when the drive belt suddenly fails and is replaced by "pet" belts made of rawhide or some other high grade material.

A good many paper mills derive the whole or part of the water which they use from driven wells. Frequently the water supply falls short, and it is desired to test these wells and note the quantity actually derived from them. The usual method is to calculate the cubic contents of the pump which draws water from these wells; then, noting the speed of the pump, multiply the two factors together and call the product the amount of water received. This is not a very satisfactory method. A scheme lately worked at a mill was to put a glass cylinder in the pipe leading to the well. Through the walls of the cylinder the flow of the water could be noted. This could be made more efficient by connecting in the glass so that it stands in a vertical position, taking water in over the top and discharging it at the bottom. In a good many parts of the country wooden pumps used by the farmers are made with glass cylinders 12 inches to 14 inches long, and 3 inches to 6 inches in diameter. One of these cylinders clamped between flanges by means of long boards offers a very good opportunity for observing the flow of water. Failing to find one of these cylinders, the writer has made use of a very heavy lantern globe, which, clamped in the same manner, placing blocks of pine wood between the flanges and rubber packing between the wood and the glass, succeeded in making a very tight and lasting job.

A good many mill owners are deluded into buying copper expansions for use in heavy steam pipe. Usually these fittings are of about as much use as a second tail would be to the average dog. They are a good thing for the dealer who sells them. The best expans'on joint is a long, right angle in the pipe, but the angle can be eased off to a circle of any convenient radius, and it will take care of the expansion just as well as if left square. When this cannot be permitted, put in a good slip joint packed so as to be tight. After watching a good many copper expansions, and not being able to see that they were doing anything, the writer has become confidently sure of the position assumed above, particularly after the copper fittings get to leaking so badly that they have to be thrown out.

Other People's Debts.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

The statute of frauds requires that a promise to pay the debt of another must be in writing, if one would enforce it in a court of law. This rule is probably now well known; but the defense is sometimes claimed where it cannot be maintained. That is, one will not be protected by such statute when the promise is an original undertaking, although the benefit went to another person than the one who is called upon to foot the bill. The simplest phase is where a party tells one to give another credit, and if the latter does not pay, then he will do so. This being prior to the creation of the debt, it will be presumed that the merchant will not part with his goods except upon the agreement that such other party will see that they shall be paid for, and the delivery becomes a sufficient consideration. This is not so where the guaranty is made after the goods have been sold. Then there should be a separate consideration; but it must always appear that the thing claimed as a consideration was induced solely by the guaranty, and that no reliance was placed elsewhere, for if in the consideration there is any taint of reliance upon anything else than the guaranty, it cannot be said that the guaranty has resulted to the prejudice of the creditor.

There is also another phase where the third party may be held, and that is where the facts show that the debtor has transferred or delivered to the promisor, for his own use and benefit, money or property in consideration of the latter's agreement to assume and pay the outstanding debt, and he thereupon has promised the creditor to pay, that promise is original, upon the ground that by the acceptance of the fund or property under an agreement to assume and pay, the promisor has made that debt his own, has become primarily liable for its discharge, and has assumed an independent duty of payment, irrespective of the liability of the principal debtor. In such case the debt has become that of the new promisor. As between him and the primary debtor, the latter has become practically a surety, entitled to require the payment to be made by his transferee.

The consideration of the primary debt by the transfer of the money or property into which that consideration had in effect been merged may be said to have been shifted over to the new promisor, who thereby comes under a duty of payment as obvious as if such original consideration had passed directly to him. As the highest tribunal in New York said: "Where one creditor agrees with another and with the debtor to pay the debt due such other creditor, in consideration of the transfer of the debtor's property to the promisor, the promise rests on a consideration of such character as to make the promise original and take it out of the statute of frauds."

It has also been held that one who has promised to pay for goods furnished another cannot avail himself of the statute of frauds in an action for their price, where

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he has collected such price from the other; for having received and retained the money it becomes his own debt, not that of another.

Correspondence.

MIAMI VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, November 23, 1896.

All things considered the season of thanksgiving is not ill-timed. It should be made a national holiday as certain of observance as the Fourth of July or Memorial Day. It is a national affair, and has been since Abraham Lincoln's first proclamation, and should always remain so. In short, Congress should set aside a certain day, and the people should act irrespective of the stereotyped request of the President. The response would be voluntary.

It is scarcely necessary to say that all of the shops and mills and factories in Dayton and the Miami Valley will be closed on this occasion. Thousands of mill workers will enjoy the day and give thanks.

The officers and directors of the Standard Straw Board Company held an important meeting at the Hotel Atlas, this city, the past week. President J. H. Swinarton, of New York, who is also vice-president of the American Straw Board Company, presided. C. A. Daniels, vice-president, of Piqua, Ohio; Secretary and Treasurer Terrett, of New York; E. C. Staley and Mr. Wood, of Urbana; C. Jay, of Muncie, Ind.; Rush Evans, of Chicago, and General-Attorney Weaver, of Lima, were in attendance.

Many matters of business were attended to punctiliously, and a few prices were arranged in apple pie order, though, other than the report that routine business was transacted, little information was obtainable. Several of the gentlemen, when seen after dinner, while they were enjoying their Havanas, which have advanced in price since the Cuban disturbance, refused to divulge anything which would make interesting reading to the trade. All were entirely and exceedingly anxious to divert attention, and did not desire to be pressed too closely; but as the business was of a private character in one way, they are not to be reproached. Most of the gentlemen predicted better times and increased selling chances.

The Standard Straw Board Company, as everybody knows, is an organization composed of the prominent strawboard manufacturers of the country. The company operates a selling agency, and handles the major part of the output of all of the mills. It represents syndicates and all the larger establishments. It is not an old organization, particularly, but is strong and vigorous, nevertheless. The men at its head are experienced and foremost in that particular branch of manufacture, and they'll find a market if the stock is at all marketable. The capital stock is a modest quarter of a million, and all of the leading holders are strawboard dealers and makers.

Several well-known Western men are interested, and as frequent meetings are held it is presumed that hospitable Dayton will be the future rendezvous. It is a nice metropolitan town, the third in the State in respect to manufactures, and about the same in population, whereas it is first in about everything else under the sun. Come again, gentlemen; you are thrice welcome! The next time make it a point to visit some of our many thriving manufactories, and wander away from the hotel a little farther than the club.

It is a pleasure to make note of the fact that Arthur Reiger, for several years head bookkeeper for the Mead Paper Company, of this city and Chillicothe, has been selected as its secretary, vice H. E. Mead, who resigned to identify himself with the filter trade in Philadelphia. Arthur is a whole-souled, worthy young man, and above all a thorough man for the position. President Chas. D. Mead will find in him, it is believed, a capable and trustworthy assistant.

O. M. Gottschall, receiver of the White Paper Company, and W. E. Crume, of the Carter-Crume Company, have been hobnobbing at the Fifth Avenue Hotel in New York. It is not thought that any scheme is hatching, however. Yet it is about time for "something to drop" in the affairs of the White Company. Will a reorganization follow? Mr. Hoffman, the "lone purchaser," who held a few mortgages, could stand up and explain without trouble, if so inclined.

H. Okawa and M. Onodera, the Japanese paper manufacturers who have been in the United States for several months past inspecting various mill centres and purchasing new machinery for Japan's first writing paper mill, are again in the Miami Valley. While they are spending most of their time with F. X. Black, president of the Black & Clawson Company, who are making special machinery for them, they called on the Dayton trade and visited the many points of interest, dining also at the club as the guests of local manufacturers. They were right royally received, and while here incidentally viewed some of their machinery under construction at the Dayton Globe Iron Works.

Mr. Okawa has circled the world once and has visited this country four times in his busy, eventful career. He employs upward of 700 men in his mill, and a large number in other concerns in which he is interested, while his new project will afford a great field for the development of Japanese labor and genius.

The other evening, at a meeting of Elks, at which a number of dignitaries were in attendance, Messrs. Okawa and Onodera were the invited foreign guests. Mr. Okawa was called upon for a few remarks. He responded cheerfully, and representing as he did a far off nation full of mysterious interest to Americans he was listened to with profound attention. He said in part:

"I am not prepared to make any extended remarks, but being compelled by Mr. Black I shall try to respond to your invitation. My knowledge of English is too limited to allow me to say all that I would like to. In our country it is the ambition of all young men to come to America and study, in order that they may come up to the standard set by your country. I have been here four times and around the world once, and I find that your country is ahead of all others.

"Before I came here I thought that the English paper machines were the best in the world, but I find that those made in America are better and cheaper. In the industrial world our nation has advanced faster in the last twenty-five years than we could have hoped for."

Referring to the Benevolent and Protective Order of Elks, he said: "We have no order such as this. I think it would be a great advantage, and maybe when I go home I shall try to get one up."

Mr. Okawa's sensible and complimentary speech was heartily cheered.

A few echoes of the condition of trade are herewith penned. From them may be gleaned the supposition that ream lots are a matter of the not far distant past, while carload orders are welcome phantoms of the future.

Wm. Thompson, of the Sabin Robbins Paper Company, says: "We had many orders that were placed subject to McKinley's success, and are now busy shipping the goods. Numerous inquiries from all over the country are coming into us daily, and I can but feel that this means a generous season of good times. We are working hard to keep up with orders. Mr. Robbins, who has been away on a trip, reports everything everything roseate and promising."

Lilburn Martin, of the Oglesby Paper Company, adds: "We are running night and day after a shutdown of several weeks. Just after the election we secured an order from one big house for a year's supply of paper, and it keeps us hustling to fill it. Just say that prosperity struck us and that everything is lovely."

Joseph Allen, of the Wrenn Paper Company, remarks: "I noticed a decided improvement in business several weeks before the election, and being a Republican I attributed that to the certainty of Republican success. Our orders are coming in rapidly, and while we are not working a full force of men, we are keeping those we have at work overtime. The tenor of our correspondence seems to show a general improvement."

Frank H. Roy, who recently visited the Continent with the Hon. P. J. Sorg, and who intends to interest himself in a paper bike saddle, speaks significantly as follows:

"I do not believe that the election has been over long enough for the beneficent effects, if such accrue, to be felt. However, our trade is constantly increasing, and orders are piling in upon us. We are working part of our force of hands now, and will gradually add others until the whole factory will be humming."

Colonel Berry, the bard of Devonshire street, who represents Carter, Rice & Co., of Boston, struck a few good-sized orders here this week. He didn't aim to dodge any, as a matter of fact. "But, you see it's this way," explained the genial colonel; "you can't always strike a good trade. Why, bless you, the printers are not as far advanced on the road to prosperity as many may make you believe. No, sir; trade's better, of course, but it could be vastly more improved."

Colonel Berry won the hearts of his associate knights of the grip when he penned the poem on "The Traveling Man's Wife." While its rhythm may not be as perfect as a Tennyson sonnet, the sentiment in that poem shines like a diamond on a soiled shirt front. Fact!

The North Dayton mills of the American Straw Board Company were closed, of necessity, the past few days, owing to a break in machinery. Uninterrupted operation will likely follow.

The magnanimity of a Hamilton paper manufacturer was in evidence the other day when he paid an election bet of $50. The winner refused to accept the money, claiming that the wager was made in a spirit of fun. The loser, however, wrote out a check and sent it to a local hospital.

Two foreign shipments which were made from the valley the past week can only elicit a display of self-pride. The Black & Clawson Company sent a mammoth Jordan engine to Sweden. The engine weighed 5,000 pounds, and goes to a paper mill firm in that country. The Sabin Robbins Paper Company filled a large order for English cloth blotting for a London (England) firm.

Export trade is receiving united attention in this valley. If the general trade would follow suit fewer periods of complete prostration (such as have been experienced) would possibly recur.

The Dayton Paper Novelty Company, so Secretary George W. Shaw tells me, will branch out largely in the jobbing business. It has always dealt, to an extent, with rolls and wrappings, but is now preparing to meet an extensive trade. This concern is one of the largest of its kind in the West, and will doubtless find a large market.

M. V.

CHICAGO.

[FROM OUR REGULAR CORRESPONDENT.]

WESTERN OFFICE PAPER TRADE JOURNAL,
78 Metropolitan Block,
CHICAGO, November 23, 1896.

In many matters intelligent men are apt to be of various minds with respect to the proper mode of solving important questions. In the interviews which I have had with the paper men of Chicago, so far as they have expressed themselves to me, the real opinion is that business is slowly improving; that there will be no sharp advance in prices, nor an unnatural demand for paper products and no boom.

How long will Chicago permit the soft coal furnaces to pollute the air with a cloud of filthy, black smoke is a question which often occurs to those who breathe this murky atmosphere. Is it not possible and practicable that the furnaces shall either consume their own smoke or use fuel which will not poison every draught of air? The little black motes from the smoke of the soft coal settling silently soil the linen, clothing, complexion, and even color the

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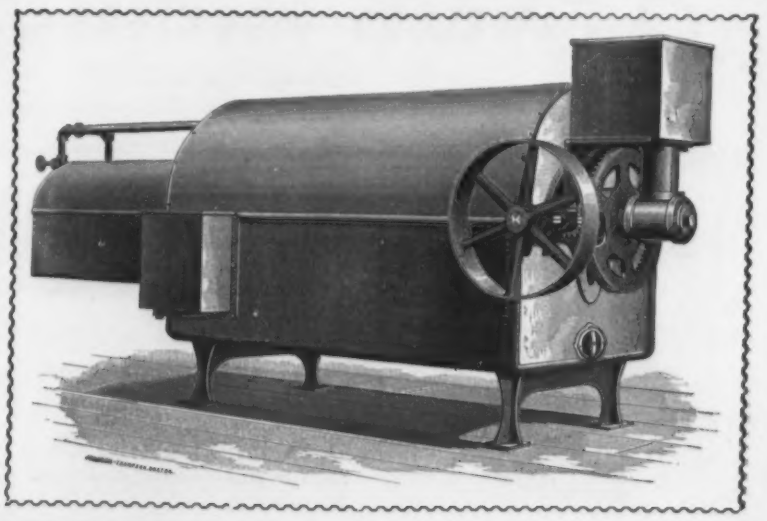

saliva; but I suppose that the demands of business are superior to all other considerations. Trade is the modern god, and we are its willing votaries, at least so long as it pays.

Speaking with the paper tradesmen, two men of different firms used the same simile. They said that business was a good deal like a sick man; it required only a little while for the system to become deranged, but the patient might recover from his illness very slowly—and business has been very sick in recent years.

"Collections," one observing individual remarked, "are very slow, which is owing to the fact that there is so little money in general circulation among the people," and he showed me a column of figures which represented, in small sums, a number of hundred dollars past due him from responsible parties who simply could not pay. I remarked that judging from the number of loads of paper stock one sees moving about the city there must be a large demand for paper. "Oh! yes," he responded, "there is plenty of money in Chicago, but outside the trade has not money with which to buy." All of which goes to show that the political economist who devises a plan not to make more money but to put in circulation that which we have will come nearest to restoring those good times about which we have heard so much in the past few months.

Why perplex ourselves with the improbable, the bugbear of a war with Spain, or like phantoms of the ingenious mind of the space writer of the daily papers? Children only are popularly supposed to be afraid of the dark and to indulge those ghostly spectres which inhabit the credulous imaginations of youth.

I had a very pleasant conversation with the senior member of a concern which manufactures an essential part of many machines. The conservative character of the firm renders it impossible for me to use its name in publishing the result of my interview. Its wares find a market in all parts of the world, inquiries and orders coming in from Australia, Germany, Austria and other foreign countries, as well as from all of the great cities of the Union. The condition of this firm's trade was spoken of as very slow; a gradual improvement was looked for, and would prove of more lasting benefit than a quick revival too often followed by a relapse more depressing than the preceding dull condition.

W. H. Bucher, Western manager for Harrison Brothers & Co., is at present in Philadelphia on business connected with the house.

H. Channon, of the H. Channon Company, said that trade is picking up some and that his company has some large orders for Ajax transmission rope.

The Paul Paper Company's failure at Menasha, Wis., created some little talk. The fear was expressed that the percentage of loss to the creditors would be great.

Mr. Sohm, of the Pioneer Paper Stock Company, said that there is a good demand for paper stock and collections are fair.

I paid a visit to the O. H. Jewell Filter Company's works at 73 and 75 West Jackson street, and had the good fortune to meet O. H. Jewell, the president. It is delightful to meet a man who is full of successful business operations in these days, and such an one is Mr. Jewell. His concern has many orders, and everyone is busy on full time work. One can only account for this happy condition of affairs by the supposition that the excellence of the company's apparatus enables it to overcome competition. I learned that this concern has just erected for the Nekoosa Paper Company, Nekoosa, Wis,, one of its latest improved gravity filter plants. This plant, like all of the other plants built by the Jewell Filter Company, is provided with a large settling basin in combination with the filters. The capacity of these works for purifying water is 3,000,000 gallons daily, leaving the water clear and bright.

This company is building a plant of the same character and capacity for the John Edwards Manufacturing Company, Port Edwards, Wis. It is also erecting for the city of Merrill, Wis., a gravity filter plant with a capacity of 2,000,000 gallons daily.

The Jewell filters are being put in at Elmira, N. Y., to furnish 6,000,000 gallons of pure water per day.

At Carlisle, Pa., the company is putting in works to have a daily capacity of 2,000,000 gallons. Other large contracts for work are receiving attention.

Mr. Lowenthal, of B. Lowenthal, Brothers & Co., said that cotton rags have not advanced materially in price; in fact are yet so low that they have not paid them for the past two years. There is a slight advance in the price of woolen rags. He thought that unless foreign rags were shipped in cotton rags must advance. He thinks also that a tariff on rags would injure the paper industry and attributes the great growth of the American paper industry to the fact largely that we have always had free trade in rags. Mr. Lowenthal is authority for the statement that the London *Times* is printed on American paper.

F. I. Lake has just returned from a trip through Ohio and Michigan. He found many dealers low on stock, and secured a great number of very heavy orders. He showed me a very elegant lot of samples.

It is said that one of the large printing establishments in the city has made estimates on fifty catalogues since election.

The president of the J. W. Butler Paper Company said that the outlook is good, and that he had no reason to complain.

James White & Co. are getting out a new sample book of their papers.

It is understood that during the past week the paper men of the city were making estimates on a contract for furnishing two carloads of paper weekly to one concern. It is said that the prices submitted were so low that there would be little profit to the successful bidder.

Mr. Moser, of the Moser-Burgess Paper Company, said that for the past two weeks he had done nothing during business hours except entertain traveling men.

Mr. Tyler, of the American Paper Company, said that he is hearing from the estimates furnished prior to election, and from orders given contingently upon the result of the election. He is pleased with the way trade is coming in.

The following mill representatives have been here during the past ten days to two weeks: J. A. Kimberly, Kimberly & Clark Company, Neenah, Wis.; J. C. Kimberly, Jr., Kimberly & Clark, Company, Neenah, Wis.; Z. Stuart, Kimberly & Clark Company, Neenah, Wis.; Mr. Forsyth, Shattuck & Babcock Company, De Pere; Mr. Young, Fox River Paper Company, Appleton, Wis.; G. A. Whiting, Geo. A. Whiting, Menasha, Wis.; J. Strange, John Strange Paper Company, Menasha, Wis.; Mr. Edmonds, Falls Manufacturing Company, Oconto Falls, Wis.; Mr. Hamilton, Marinette and Menominee Paper Company, Marinette, Wis.; Mr. Dutton, National Envelope Company, Milwaukee, Wis.; Mr. Valentine, Combined Locks Paper Company, Appleton, Wis.; Mr. French, Michigan Wood Pulp Company, Niles, Michigan; J. C. Lane, Lane Paper Company, Elkhart, Ind.; Mr. Whitney, Wolverine Paper Company, Kalamazoo, Mich.; Mr. Bardeen, Bardeen Paper Company, Otsego, Mich.; Mr. Harding, Harding Paper Company, Franklin, Ohio; Mr. Coye, C. H. Dexter & Sons, Windsor Locks, Conn.; W. O. Russell, Russell Paper Company, Boston, Mass.; Mr. Bush, Old Berkshire Mills Paper Company, Dalton, Mass.; James Wallace, Hampshire Paper Company, South Hadley Falls, Mass.; Mr. Fowler, Hampden Glazed Paper and Card Company, Holyoke, Mass.; Mr. Cooper, Linton Brothers & Co., Pawtucket, R. I.; Mr. Barden, Crane Brothers, Westfield, Mass.; Mr. Barden, Fairfield Paper Company, Fairfield, Mass.; Mr. Boswell, Albemarle Paper Manufacturing Company, Richmond, Va.

Edward H. Bush, salesman for the Old Berkshire Mill, is at the Victoria. His talk confirmed the views of the business men which have been narrated herein. He also stated that we were exporting news. In speaking of THE PAPER TRADE JOURNAL he praised it as the best of its kind.

H. B. A.

BOSTON.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
64 Federal Street,
BOSTON, November 25, 1896.

Changes noted this week are in the line of improved business, although the improvement is not so widespread as to be shared alike in all branches of the trade. Printed wrappings and manillas, which were reported by local jobbers last week as being in very quiet movement, are now said to be in much better demand.

Manufacturers are not all crowded with orders; but they do say, some of them, that jobbers are placing larger orders than before the election, and they are disposed to view the future with feelings of confidence. With the coming of the new year they look for better business.

Reports from paper stock importers are about of the same tenor as heretofore noted. Inquiry is frequent, and if market conditions were more favorable good orders could be booked. As it is prices range too high to encourage paper manufacturers in buying. As a result the paper stock market is quiet, but firm in tone. The views of foreign packers will have to soften a little before orders can be placed liberally.

Sulphite fibre is said to have experienced quite an improved demand of late, and it is stated that prices on high grade sulphite have advanced $1 to $2 a ton within the past week.

The news paper situation is under renewed discussion this week, the scene of the gathering of those interested being at the Parker House. As usual on such occasions there is nothing to give out for publication.

Richard Smith, of old time-calender feed fame, was seen in town this week. Mr. Smith is now located at Sherbrooke, P. Q., where he has a paper mill machinery plant in operation, and some of his specialties continue to find their way into the paper mills of this country. It is quite possible that the trade will hear more frequently of Mr. Smith in the near future, as he is planning for increased business relations with the paper mills.

E. C. Rogers, president, and C. B. Wells, secretary, of the Massasoit Paper Manufacturing Company, Holyoke, Mass., came to town yesterday to attend the banquet of the Home Market Club, held last night at the Mechanics Hall, this city. Some 1,100 members were seated at the banquet tables. W. Murray Crane, of Dalton, Mass., Lieutenant-Governor elect, was one of the distinguished guests of the evening. Quite a number of the paper trade were seen at the banquet, among them being ex-Gov. P. C. Cheney, of Manchester, N. H.; Hon. Elisha Morgan, of Springfield, Mass.; N. T. Pulsifer, Manchester, Conn.; Homer J. Stratton, A. E. Hemphill and Edward McCorkindale, of Holyoke, Mass.; Chas. T. Pulsifer, Thos. N. Cook, T. H. Keenan, Col. J. P. Jordan, Col. E. H. Haskell and James B. Forsyth, of the city trade.

The list of recent visitors includes Chas. H. Milliken, of Mechanic Falls, Me.; L. M. Bickford, of Portland, Me.; Henry Richards, of Gardiner, Me.; A. N. Burbank, Mr. White, of Bellows Falls, Vt.; Frank P. Carpenter, of Manchester, N. H.; W. A. Whitney, of Sunapee, N. H.; Mr. Bartlett, of Nashua, N. H.; Mr. Fairbanks, of St. Johnsville, Vt.; James Linton, Walter H. Stearns, of Pawtucket, R. I.; Chas. S. Mayo, of Lawrence, Mass.; Chas. Dale, Fred Temple, of East Pepperell, Mass.; Chas. S. Barton, Mr. Williams, of Worcester, Mass.; Edward E. Bill, of Springfield, Mass.; W. J. Raybold, of Mittineaque, Mass.; Mr. Powers, Geo. C. Crafts, Mr. Moriarty, of Holyoke, Mass.; James Conley, Mr. Graham, Thomas Duncan, I. R. Elston, of New York.

The executive committee of the Boston Paper Trade Association met at the office of Train, Smith & Co. on Tuesday to arrange the details of the next reunion, which will be held on December 9 at the Brunswick. Governor Walcott, Hon. W. Murray Crane, of Dalton, Mass.; Col. H. A. Thomas, the Governor's private secretary; Geo. F. Perkins, president, and W. H. Parsons, Jr., secretary of the American Paper Manufacturers' Association, will be the distinguished guests of the occasion. It is the purpose of the association to make this meeting a reception to the Hon. W. Murray Crane, who is so soon to be installed as Lieutenant-Governor of the State. Every member of the association will certainly honor Mr. Crane on this occasion by being present. Unless all signs fail, this next meeting will be one of the red letter events of the Boston Paper Trade Association.

The many members of the trade acquainted with Henry V. Pinkham, one of the veterans of the Boston paper business, will regret to learn that he is confined to his home at Newtonville, Mass., incapacitated for further business action. Mr. Pinkham is now about sixty-five years of age, and being in need of the necessaries of life his local friends have arranged for a complimentary benefit to be given in his behalf, which will taken place under church auspices at Newtonville on December 2. Any contributions which old friends might feel like sending may be sent to Mr. Pinkham at his home, and such donations will be most gratefully received by the disabled beneficiary.

H. T. Bartow has gone to New York to spend Thanksgiving Day at his old Brooklyn home.

Among the exports from Boston for the week ended November 20 were books to the value of $1,746, and paper valued at $10,148.

And now for a turkey and something to go with it.

DELESDERNIER.

WESTERN NEW YORK.

[FROM OUR REGULAR CORRESPONDENT.]

NIAGARA FALLS, N. Y., November 26, 1896.

Thanksgiving Day passed off most pleasantly and the mill men enjoyed the day. Most of the companies presented turkeys to their men. The weather was perfect—warm and springlike.

The problem which confronts the paper trade is complex, and the more managers study the situation the more they are puzzled in what way to begin to brace up the market on prices. Now that orders are more plentiful and the mills all running it would seem that everyone ought to be happy. That, however, is not exactly the case. The commission house or jobber wants a carload at such a figure. There is not much margin in it at the figure quoted, but the manufacturer knows that if he does not accept the order some one else will, and so it goes.

While in the East recently your correspondent was informed about the closing down of a number of mills throughout the country. Some manufacturers made a cheaper paper; others suspended for the time being. Some of the very largest mills in the country were more or less affected. I returned home and found the Niagara Falls mills all going, and better yet, they have been going. So rushed is the big mill of the Niagara Falls Paper Company that the machines are running night and day seven days in the week. Orders keep increasing and the price is maintained.

The Cliff Paper Mill is also very busy. Manager Hastings says that the inquiries and orders are very numerous. The Pettebone-Cataract mill is also very lively, both machines running night and day.

The annual meeting of the Niagara Falls Paper Company was held at the Great Northern Hotel, Chicago, last Thursday. The stockholders elected the following directors: J. L. Norton, of Chicago; Lewis A. Hall, D. O. Mills and Ogden Mills, of New York, and J. C. Morgan, of Niagara Falls. The following named officers were also chosen: President, J. L. Norton; vice-president, Lewis A. Hall; treasurer, Richard F. Rankine; secretary and general manager, J. C. Morgan. Ira L. Beebe was reappointed manager of sales. The stockholders of the company are satisfied with

(*Continued on page 984.*)

THE PUSEY & JONES COMPANY,
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Sole agents for the SALOMON-BRÜNCGER SULPHITE PATENTS.
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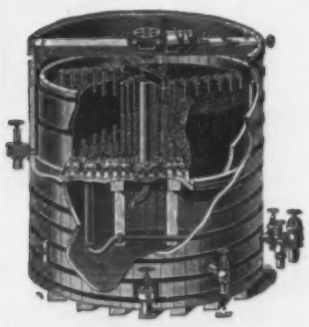

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GRAVITY AND PRESSURE FILTERS.
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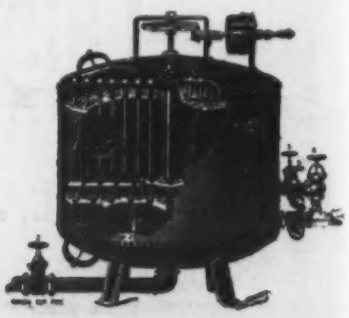
PACIFIC JEWELL FILTER CO., 222 Sutter Street, SAN FRANCISCO.



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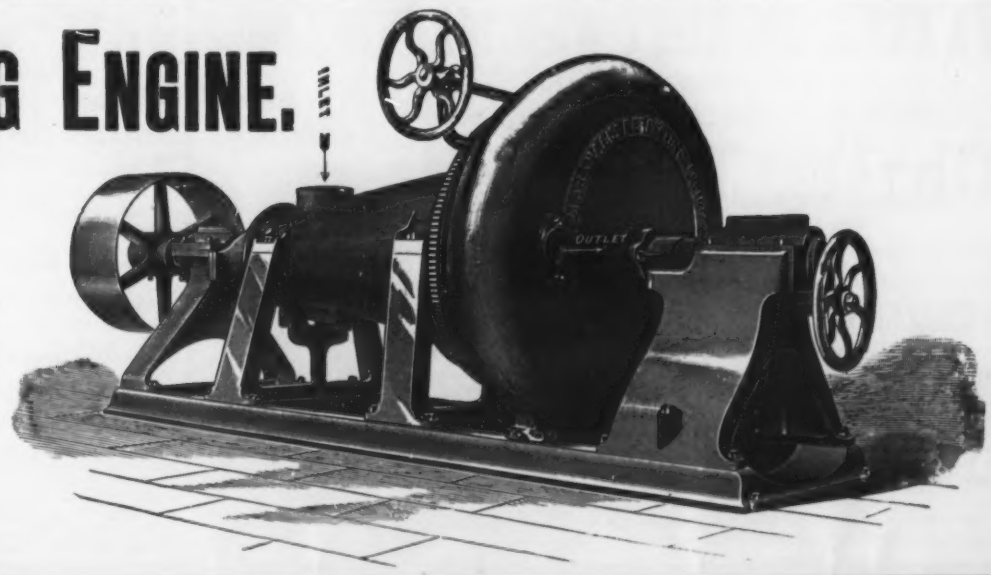

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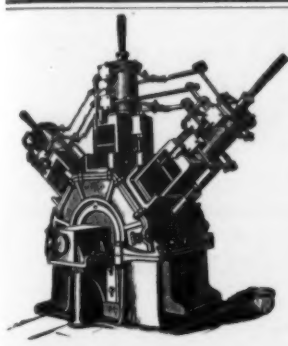

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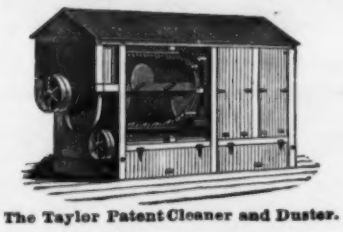

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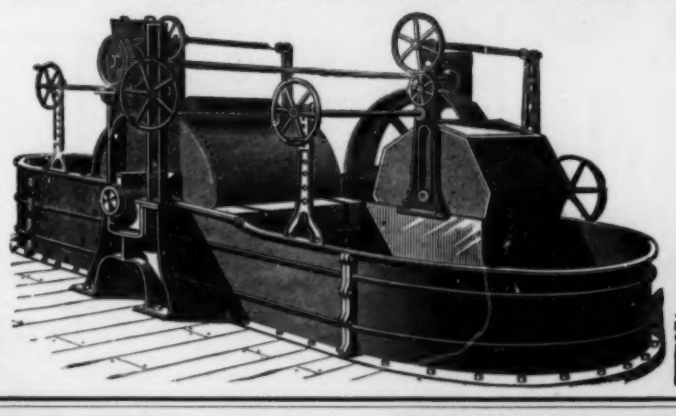

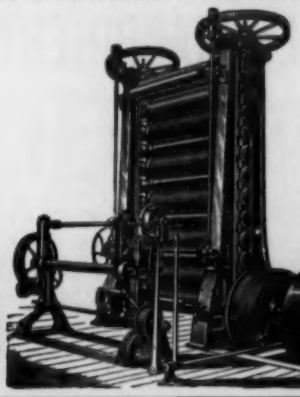

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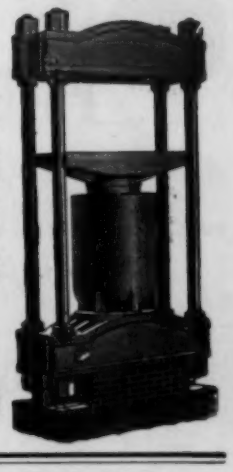

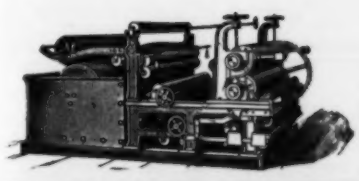

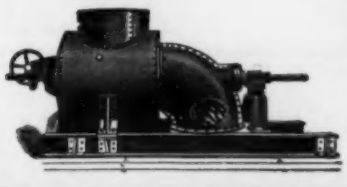

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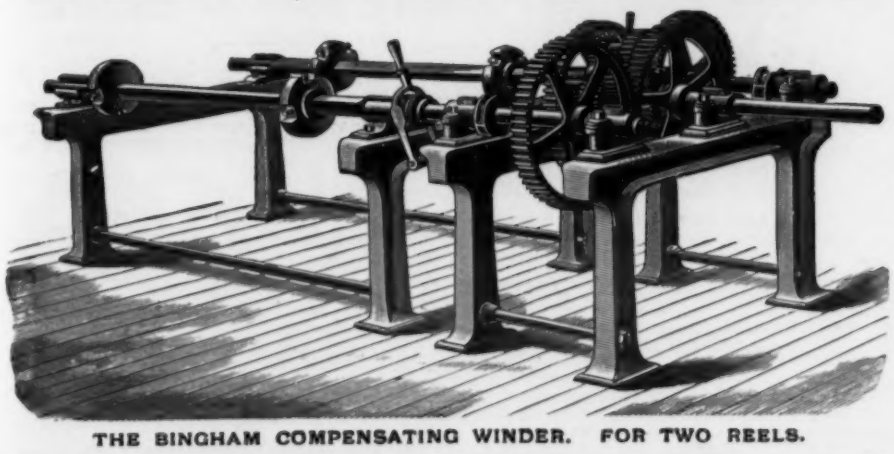

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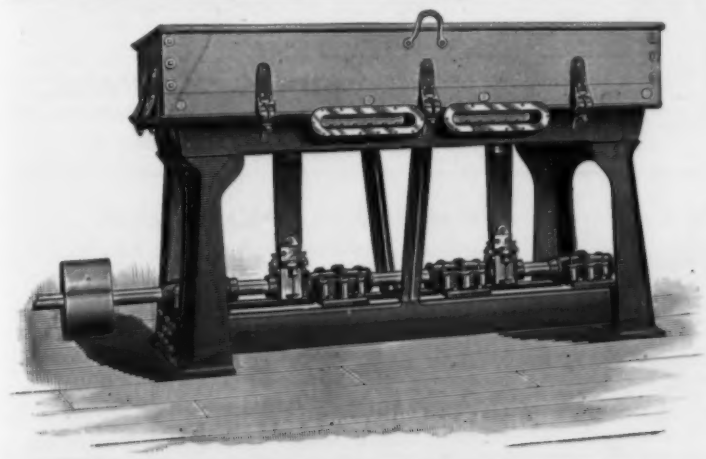

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Rag Dusters, Pulleys, Shafting, Gearing Friction Cut-off Couplings and Friction Pulleys.

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Lift Rods operated by wheels above for raising any number of the rolls.

Housings so made that the rolls may be taken out endwise through frame.

OLD ROLLS REGROUND AT SHORT NOTICE.

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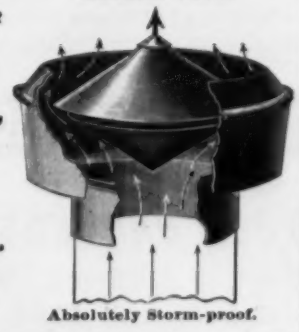

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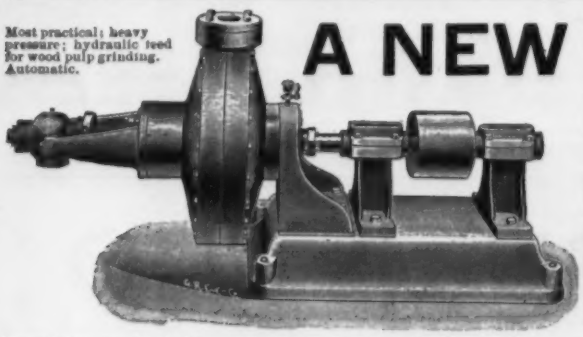

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BOOKS OF REFERENCE

THE following is a list of Books of Reference on subjects connected with Paper Making, Chemicals, Colors, Machinery, Hydraulics, &c.:

AUERBACH.—Anthracen: Its Constitution, Properties, Manufacture and Derivatives. 8vo. $5 00

BAIRD.—Standard Wages Computing Tables. Folio. 5 00

BENSON.—Principles of the Science of Color. 4to. 7 50

BENSON.—Manual of the Science of Color. 12mo. 1 00

BESANT.—A Treatise on Hydro-Mechanics. 8vo. 5 00

BOX.—A Practical Treatise on Heat as Applied to the Useful Arts. Illustrated by fourteen Plates. 12mo. 5 00

BOX.—A Practical Treatise on Mill Gearing. 12mo 3 50

BOX.—Practical Hydraulics. 12mo. 2 00

BRESSE.—Hydraulic Motors. 8vo. 2 50

BROWN.—Five Hundred and Seven Mechanical Movements. 12mo. 1 00

CALVERT.—Dyeing and Calico Printing, including an Account of the Most Recent Improvements in the Manufacture and Use of Aniline Colors. With dyed Patterns. 8vo. 8 00

CHEVREUL.—The Principles of Harmony and Contrasts of Colors and Their Application to the Arts. Illustrated with Colored Plate. 12mo. 3 00

COOPER.—A Treatise on the Use of Belting for the Transmission of Power. 8vo. 3 50

CORFIELD.—Water and Water Supply. 16mo. 50

CROOKES.—Handbook of Dyeing and Calico Printing. With dyed Patterns. 8vo. 15 00

CULLEN.—Practical Treatise on the Construction of Horizontal and Vertical Water Wheels. 4to. 5 00

DOWNING.—The Elements of Practical Hydraulics. 8vo. 2 75

DUNBAR.—The Practical Paper Maker. 1 00

FAIRBAIRN.—The Principles of Mechanism and Machinery of Transmission. 12mo. 2 50

FAIRBAIRN.—A Treatise on Mills and Millwork. 2 vols., 8vo. 10 00

FANNING.—A Practical Treatise on Water Supply Engineering. 8vo. 5 00

FRANCIS.—Lowell Hydraulic Experiments on Hydraulic Motors. 4to. 15 00

FRESENIUS.—Manual of Qualitative Chemical Analysis. 8vo. 3 50

FRESENIUS.—System of Instruction in Quantitative Chemical Analysis. 6 00

GLYNN.—A Treatise on the Power of Water, 12mo. 1 00

JACKSON.—Hydraulic Manual. 8vo. 10 00

JACOB.—The Designing and Construction of Storage Reservoirs. 16mo. 50

JOHNSON.—The Practical Draughtsman's Book of Industrial Design and Machinist's and Engineer's Drawing Companion. With over fifty Steel Plates. 4to. 10 00

KANE.—Elements of Chemistry, including the most Recent Discoveries and Applications of the Science to Medicine and Pharmacy and to the Arts. Illustrated. 8vo. 1 65

KINGZETT.—The History, Products and Processes of the Alkali Trade, including the most recent improvements. 8vo. 2 50

KIRKWOOD.—Report of the Filtration of River Waters, for the Supply of Cities, &c. 4to. 15 00

KOOPS.—Historial Account of the Substances which have been used to describe Events and to convey Ideas from the Earliest Date to the Invention of Paper. By Matthias Koops. Printed on Paper Manufactured solely from Straw. London, 1801. 10 00

KUTTER.—The New Formula for Mean Velocity of Discharge of Rivers and Canals. 8vo. 5 00

LEFFEL.—The Construction of Mill Dams. 8vo. 50

MUNSELL.—A Chronology of Paper and Paper Making. 8vo. 2 00

NEVILLE.—Hydraulic Tables, Coefficients and Formulæ for Finding the Discharge of Water from Orifices, Notches, Weirs, Pipes and Rivers. 12mo. 5 00

PALLETT.—The Miller's, Millwright's and Engineer's Guide. 12mo. 3 00

RANKINE.—A Manual of Machinery and Millwork. 12mo. 5 00

REID.—A Practical Treatise on Concrete and How to Make It. 12mo. 2 00

REIMANN.—On Aniline and its Derivatives. 8vo. 5 00

RIFFAULT.—A Practical Treatise on the Manufacture of Colors for Painting. 8vo. 7 50

ROPER.—Use and Abuse of the Steam Boiler. By Stephen Roper. Illustrated. 18mo, tucks, gilt edge. 2 00

ROSCOE.—Lesson in Elementary Chemistry, Inorganic and Organic. 12mo. 1 10

ROSE.—The Complete Practical Machinist. 12mo. 2 50

ROUTLEDGE.—Bamboo, considered as a Paper Making Material. 8vo, paper. 80

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THORPE.—Quantitative Chemical Analysis. 12mo. 1 75

THORPE AND MUIR.—Qualitative Chemical Analysis and Laboratory Practice. 12mo. 1 50

URE'S DICTIONARY OF ARTS, MANUFACTURES AND MINES.—By Robert Hunt, F. R. S. Illustrated with nearly 2,000 engravings on wood. 1867. 4 vols., 8vo 35 00

VON BEZOLD.—The Theory of Color in its Relation to Art and Art Industry. 8vo. 5 00

WAGNER.—A Handbook of Chemical Technology. Translated and Edited by Wm. Crookes, F. R. S. With 336 Illustrations. 8vo. 5 00

WATTS.—Dictionary of Chemistry and the Allied Branches of other Sciences. By Henry Watts, F. R. S. With the First and Second Supplements, bringing the record of discovery down to 1874. 9 vols., large 8vo. 100 00

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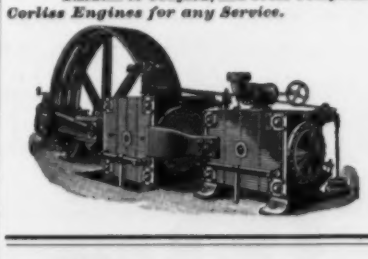

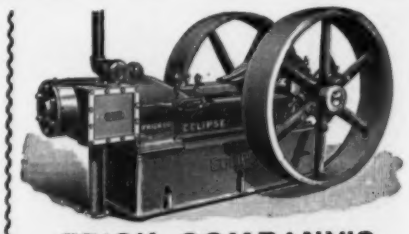

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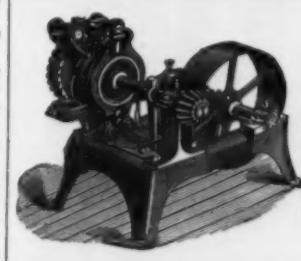

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IMPORTS AT NEW YORK.

FOR THE WEEK ENDED NOVEMBER 20, 1896.

An. Colors..	957	$50,790	Paper ...	556	$25,638
Alum.....	—	—	Steel Pens..	6	3,690
Alum's Cake	—	—	Stationery..	7	376
Bl. Powders	396	6,287	Slate Pencils	5	57
Soda Ash....	1,026	3,114	Clay..	—	394
Soda Caus..	1,057	14,160	J'te B'ts, &c.	—	—
Soda Sal....	—	—	P. Hangings	17	524
Soda Hypo..	300	236	Pap'r Stock.	3,051	19,692
Ultramarine	20	599	Terra Alba.	—	—
Books..... ..	487	47,903	Waste..... ..	21	4,604
Newspapers	482	17,316	Wood Pulp.	942	4,570
Engravings.	49	2,782			
Ink.....	38	1,184			
Lead Pencils	16	2,602	Totals....	9,333	206,508

Imports General Merchandise for the week ended November 20, 1896..... $7,051,492

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO NOVEMBER 20, 1896.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Amsterdam ..	58	....	....	....	747
Antwerp.....	4,456	....	1,021	....	9,444
Bremen.....	2,505	34	....	....	2,068
Bordeaux.....	3,738	....	....	..	....
Bristol.....	153	....	....	....	4,964
Calcutta.....	....	....	....	....	5,218
Cen. America	400	....	....	...	....
Christiania...	248	.. .	362	....	24
Colon.....	127	....	....	....	...
Copenhagen..	1,335	....	525	....	539
Dublin.....	....	388	....	....	....
Dundee..... .	....	...	....	....	2,141
Genoa.....	1,916	....	....	....	1,859
Glasgow.....	353	1,028	....	....	438
Gothenburg..	....	....	700	....	1,076
Hamburg.....	6,193	87	634	....	3,479
Havre.....	...	....	....	....	512
Hiogo.....	630	....	....	....	....
Hull.....	4,936	....	731	....	9,373
Kobe.....	2,022	....	....	....	5
Leith.....	....	....	80	....	1,003
Leghorn..... ..	1,372	....	...	....	150
Lisbon.....	....	....	....	....	15
Liverpool.....	857	308	....	....	12,400
London.....	2,805	5,329	7	....	5,508
Marseilles....	171	....	....	....	2,119
Nassau	17	...	....	. ..	48
Newcastle....	....	....	190	....	1,478
Porto Rico....	5	....	....	....	....
Rotterdam....	6,964	....	467	....	1,784
Stettin..... .	4,603	78	421	....	1,909
Swansea.....	.. .	....	....	....	282
Trieste..	....	....	15	....	....
Valparaiso....	9	....	....	....	....

NEW YORK IMPORTS.

FROM NOVEMBER 18 TO NOVEMBER 25, 1896.

Paper Stock.

James Pirnie, British King, Antwerp, 200 bs. bagging.

Lewy Brothers Company, by same, 329 bs. rags.

James Pirnie, Kensington, Antwerp, 220 bs. bagging.

Train, Smith & Co., by same, 190 bs. bagging.

F. Salomon & Co., H. H. Meier, Bremen, 582 bs. rags.

Panama Railroad Company, Advance, Colon, 47 bs. rags.

F. Salomon & Co., Union, Hamburg, 345 bs. rags.

Geo. Stratford, Marsala, Havre, 95 coils rope.

Jessup & Moore Paper Company, Italia, Leghorn, 25 bs. rags.

Castle & Gottheil, by same, 84 bs. rags.

J. Westhorpe, Mobile, London, 70 bs. rope.

John H. Lyon & Co., Megantic, London, 38 bs. rags.

Jessup & Moore Paper Company, Auguste, Marseilles, 71 bs. manillas.

Jessup & Moore Paper Company, Werkendam, Rotterdam, 211 bs. rags.

Paper.

O. F. Melvin & Co., Kensington, Antwerp, 5 cs.

Knauth, Nachod & Kuehne, by same, 14 bs.

W. H. Stiner & Son, by same, 10 cs.

J. W. Hampton, Jr., & Co., by same, 30 cs.

Henry Bainbridge & Co., by same, 7 cs.

L. C. Wagner & Co., by same, 2 cs.

E. Dietgen & Co., by same, 83 cs.

Hugo Saloman, Lahn, Bremen, 1 cs.

L. De Jonge & Co., Werkendam, Rotterdam, 20 cs.

R. F. Downing & Co., by same, 5 cs.

Knauth, Nachod & Kuehne, H. H. Meier, Bremen, 2 cs.

L. De Jonge & Co., Germanic, Liverpool, 12 cs.

Kaufmann Brothers & Bondy, by same, 5 cs.

C. Somerville, by same, Liverpool, 3 cs.

Schall & Co., Normania, Hamburg, 3 cs.

S. A. Borggenis, by same, 6 cs.

B. Lawrence Stationery Company, St. Louis, London, 10 cs.

American Trading Company, by same, 1 cs.

C. P. Casanges, Illyria, Trieste, 1 cs.

G. J. Kraft, Etruria, Liverpool, 10 cs.

J. C. Drucklieb & Co., La Gascogne, Havre, 25 cs.

American Tobacco Company, by same, 51 cs.

J. P. McHugh, by same, 2 cs. hangings.

F. Beck & Co., by same, 2 cs. hangings.

R. F. Downing & Co., British King, Antwerp, 19 cs.

Hardt & Lindgens, by same, 21 cs.

C. D. Stone & Co., by same, 4 cs.

Emil Majert, Obdam, Rotterdam, 1 cs. hangings.

P. H. Petry & Co., by same, 25 bales.

L. De Jonge & Co., by same, 3 cs.

Henry Lindenmeyr & Sons, by same, 39 cs.

Bleaching Powder.

J. L. & D. S. Riker, Cevic, Liverpool, 395 cks.

Fuerst Brothers, Kensington, Antwerp, 74 cks.

F. A. Reichard, by same, 96 cks.

J. L. & D. S. Riker, State of Nebraska, Glasgow, 15 cks.

Soda Ash.

Wing & Evans, Cevic, Liverpool, 680 cks.

Wing & Evans, Germanic, Liverpool, 155 cks.

Caustic Soda.

Edward Hill's Son & Co., Idaho, Hull, 400 drums.

Edward Hill's Son & Co., Cevic, Liverpool, 325 drums.

Edward Hill's Son & Co., Majestic, Liverpool, 50 drums.

C. W. Fisher, Tauric, Liverpool, 20 drums.

United Oil Company, by same, 20 drums.

BOSTON IMPORTS.

FROM NOVEMBER 18 TO NOVEMBER 24, 1896, INCLUSIVE.

Paper, &c.

W. A. Nosworthy, Galileo, London, 43 cs. paper.

Frost & Adams Company, by same, 1 cs. paper.

W. H. Proctor & Co., by same, 6 cs. paper hangings.

Stone & Downer, Andiuasia, Hamburg, 40 cs. paper.

Paper Stock.

Train, Smith & Co., Peruvian, Glasgow, 77 bs. rags.

Train, Smith & Co., Scotsman, Liverpool, 247 bs. rags.

Edwin Butterworth & Co., by same, 156 bs. manillas.

Robert Gray, by same, 9 bs. rags.

Train, Smith & Co., Andalusia, Glasgow, 125 bs. rags.

Felix Salomon & Co., by same, 1,330 bs. rags, 10 bs. waste papers.

Train, Smith & Co., Sachem, Liverpool, 340 bs. rags.

Edwin Butterworth & Co., by same, 7 bs. rags, 114 bs. manillas.

Horace Dutton & Co., by same, 48 bs. rags.

Horace Dutton & Co., Galileo, London, 118 bs. rags.

Wheelwright Paper Company, by same, 52 bs. waste papers.

Crocker, Burbank & Co., by same, 384 bs. waste papers.

Warren & Co., by same, 380 coils manillas.

Robert Bishop, by same, 19 bs. waste papers.

Wood Fibre.

Fred. Bertuch & Co., Andalusia, Hamburg, 500 bs.

Page, Newell & Co., by same, 214 bs.

Sizing.

Warren & Co., Sachem, Liverpool, 50 bags.

Bleaching Powder.

J. L. & D. S. Riker, Sachem, Liverpool, 236 cks.

Hartford Manilla Company, by same, 5 cks.

J. L. & D. S. Riker, Scotsman, Liverpool, 334 cks.

Caustic Soda.

Thomas Nickels & Co., Scotsman, Liverpool, 50 drums.

Soda Ash.

Warren & Co., Scotsman, Liverpool, 36 cks.

Wing & Evans, by same, 14 cks. and 120 bags.

Warren & Co., Sachem, Liverpool, 400 bags.

Soda Crystals.

Warren & Co., Sachem, Liverpool, 140 bbls.

Warren & Co., Scotsman, Lilverpool, 280 bbls.

Pulp Stones.

Lombard & Co., Galileo, London, 19 stones.

BALTIMORE IMPORTS.

FOR THE WEEK ENDED NOVEMBER 21, 1896.

Bleaching Powder.

J. L. & D. S. Riker, Vedamore, Liverpool, 21 cks.

Same, Ulstermore, Liverpool, 45 cks.

Soda Ash.

Order, Vedamore, Liverpool, 27 cks. and 240 bags.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED NOVEMBER 21, 1896.

Paper.

J. L. Van Diver, Switzerland, Antwerp, 16 cs.

Paper Stock.

Lazard Frères, Switzerland, Antwerp, 145 bs. rags.

Brown Brothers & Co., by same, 77 bs. rags.

J. B. Burnley, by same, 20 bs. rags.

Soda Ash.

Wing & Evans, Indiana, Liverpool, 233 cks., 2,224 bags.

Same, Assyrian, Liverpool, 34 cks., 1,776 bags.

Bleaching Powder.

J. L. & D. S. Riker, Assyrian, Liverpool, 80 cks.

Order, Switzerland, Antwerp, 211 cks.

Antichlor.

Order, Switzerland, Antwerp, 262 cks.

Soda Crystals.

Wing & Evans, Assyrian, Liverpool, 280 cks.

Bichromate of Potash.

J. L. & D. S. Riker, Buenos Ayrean, Glasgow, 25 cks.

MONTREAL IMPORTS.

FOR THE WEEK ENDED NOVEMBER 21, 1896.

Bleaching Powder.

J. L. & D. S. Riker, Vancouver, Liverpool, 71 cks.

Order, Frey, Antwerp, 50 bbls.

Soda Ash.

Order, Vancouver, Liverpool, 140 bags.

Same, Laurentian, Liverpool, 5 cks. and 55 bags.

Caustic Soda.

Order, Gerona, Newcastle, 50 drums.

Same, Laurentian, Liverpool, 100 drums.

J. L. & D. S. Riker, Vancouver, Liverpool, 25 drums.

Soda Crystals.

J. L. & D. S. Riker, Vancouver, Liverpool, 56 bbls.

Order, Laurentian, Liverpool, 175 kegs.

Sulphur.

Order, Vancouver, Liverpool, 507 bags.

EXPORTS of Paper, &c., from New York for the Week Ended November 24, 1896.

BOOKS, to British Australasia, 27 cs.; British West Indies, 6 pkgs.; Cuba, 1 cs.; Central America, 3 cs.; Chili, 1 cs.; China, 2 cs.; Dutch West Indies, 4 pkgs.; Hamburg, 4 cs.; Havre, 7 cs.; Liverpool, 9 cs.; London, 3 cs.; Mexico, 3 cs.; New Zealand, 2 cs.; Rotterdam, 1 cs.; Southampton, 18 cs.; Stockholm, 1 cs; Colombia, 1 pkg.; Venezuela, 2 pkgs.; Brazil, 3 cs.

PAPER, to British Honduras, 69 pkgs.; British Australasia, 77 pkgs.; Brazil, 73 pkgs.; British West Indies, 477 pkgs.; Bremerhaven, 10 cs.; Cuba, 155 pkgs.; Central America, 4 pkgs.; Dutch West Indies, 16 pkgs.; Dutch Guiana, 9 pkgs.; Glasgow, 2 pkgs.; Hull, 6 cs.; Hayti, 23 pkgs.; Hamburg, 11 cs.; Havre, 3 cs.; Liverpool, 19 pkgs.; London, 166 pkgs.; Manchester, 460 pkgs.; Mexico, 247 pkgs.; Porto Rico, 233 pkgs.; Southampton, 2 cs.; Colombia, 11 pkgs.; Venezuela, 10 pkgs.; Danish West Indies, 52 pkgs.

STATIONERY, to Antwerp, 2 cs.; Bremen, 7 cs.; British Australasia, 54 pkgs.; Brazil, 5 pkgs.; British West Indies, 21 pkgs.; Cuba, 3 cs.; Central America, 8 cs.; Chili, 10 cs.; Dutch West Indies, 1 cs.; Hayti, 2 cs.; Hamburg, 1 cs.; Havre, 1 cs.; Liverpool, 3 cs.; London, 98 cs.; Peru, 6 pkgs.; Rotterdam, 3 cs.; Colombia, 12 cs.; Venezuela, 6 pkgs.; Mexico, 46 cs.

PRINTED MATTER, to Bremen, 7 pkgs.; British East Indies, 1 pkg.; British Australasia, 2 cs.; Christiania, 2 pkgs.; Ecuador, 1 cs.; Glasgow, 2 cs.; Hamburg, 9 cs.; Havre, 2 cs.; Liverpool, 47 pkgs.; London, 155 cs.; Leipsic, 1 pkg.; Southampton, 31 cs.; Colombia, 3 pkgs.; Venezuela, 5 pkgs.

TWINE, to British Australasia, 8 bs.; British possessions in Africa, 2 bs.; Brazil, 55 bs., 66 bbls., 2 cs.; British West Indies, 3 pkgs.; Central America, 1 bl.; French Guiana, 1 cs.; Hayti, 1 bl.; Mexico, 1 bl., 1 cs.; Porto Rico, 1 bbl.; Colombia, 3 bs.; Venezuela, 60 bs.

SANDPAPER, to Brazil, 2 bdls.; Cuba, 4 bdls.; Central America, 15 bs.; Havre, 2 cs.; Intra, 5 bdls.; London, 100 pkgs.; Mexico, 3 bs.

PLAYING CARDS, cases, to British Australasia, 21; Christiania, 1; Danish West Indies, 1; Hamburg, 1; London, 16; Southampton, 3.

TAGS, cases, to Antwerp, 1; Bremen, 3; British Australasia, 20; Bremerhaven, 2; Mexico, 3.

PAPER BOXES, cases, to Liverpool, 13; London, 5; Colombia, 1.

STRAWBOARD, to London, 1,715 bdls.; Mexico, 4 cs.

CARDS, cases, to Colombia, 1.

PERIODICALS, bundles, to Leipsic, 2.

PAPER GOODS, cases, to Antwerp, 62.

LABELS, cases, to Hayti, 1; Hamburg, 2; London, 3.

CARDBOARD, to Brazil, 1 cte.; Venezuela, 3 pkgs.

PAPER BAGS, to British Australasia, 343 pkgs.; Danish West Indies, 1 cs.

PAPER PATTERNS, cases, to Argentine Republic, 5; London, 2.

RAGS, bales, to Antwerp, 45; Manchester, 5.

COTTON WASTE, bales, to British Australasia, 8; Hull, 5; Hamburg, 215; Marseilles, 59; Colombia, 5.

ROSIN, barrels, to British possessions in Africa, 5; Brazil, 227; Glasgow, 163; Peru, 4; Venezuela, 162.

CAUSTIC SODA, drums, to Venezuela, 11.

EMERY PAPER, cases, to Hayti, 1.

WOOD PULP, rolls, to Hamburg, 195.

WOOD PULP BOARDS, bundles, to Leeds, 238.

AGGREGATES AND VALUES.

Wood Pulp, bundles.....	—	—
Wood Pulp, rolls.....	195	$500
Cotton Waste, bales.....	234	5,864
Rags, bales	50	557
Paper, reams.....	—	—
Paper, pkgs..	1,556	10,726
Paper, cases.....	190	1,296
Books, cases.....	85	4,182
Books, pkgs.....	11	215
Stationery, cases.....	210	13,369
Stationery, pkgs.....	99	1,736
Rosin, bbls.....	561	1,817
Totals.....	3,184	$40,362

Exports General Merchandise for the week ended November 24, 1896..... $7,721,265

LOCATIONS

— FOR —

PAPER MILLS.

The name of the Chicago, Milwaukee and St. Paul Railway has long been identified with practical measures for the general upbuilding of its territory and the promotion of its commerce, hence manufacturers have an assurance that they will find themselves at home on the company's lines.

Paper mills located or now locating in Wisconsin and elsewhere in the territory of the Chicago, Milwaukee and St. Paul Railway are able to command the Western trade on account of the advantage of proximity to raw material and market, central location and transportation facilities.

Some great water powers on the Wisconsin River can still be secured by paper makers. (Wisconsin River water is excellent for paper making and the water is sure). Pine and poplar exist on the line in immense quantities. There is also considerable spruce at hand and a great supply within easy reach. Wood pulp mills can be located at good points, while for sulphite pulp plants the great resources of hemlock along this railway are well known. The company has all its territory districted in relation to resources, and seeks to secure manufacturing plants at the right location, where the raw material, power, fuel, markets and surroundings will insure their permanent success. Paper makers contemplating the erection of new plants in the West (confidential inquiries are treated as such) can be furnished with reliable information. Address

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Industrial Commissioner, C., M. & St. P. R'y.
425 Old Colony Building, CHICAGO, ILL.

TRAIN, SMITH & CO.,

IMPORTERS OF AND DEALERS IN ALL DESCRIPTIONS OF

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BRANCH OFFICES: 140 Nassau St., NEW YORK. 14, 16, 18 & 20 St. Mary Axe, E. C., LONDON. 21 Irwell Chambers, Fazakerley Street, LIVERPOOL.

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WHOLESALE DEALERS IN AND PACKERS OF

Woolen Rags and Paper Makers' Supplies,

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WOOLEN RAGS GRADED IN COLORS AND QUALITY.
OUR SPECIALTIES: "EXCELSIOR" AND "STAR" PACKINGS.

F. BREDT & CO.,

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ENGLISH FELTINGS.

ALSO IMPORTERS AND DEALERS IN

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Jacketing, Roll Cloth, Double Extra Canvas, Ultramarine Blue.

A. D. LITTLE, GRIFFIN & LITTLE, PAPER MILL CHEMIST,

Office and Laboratory: 103 Milk Street, Boston.

EXPERT IN THE SULPHITE PROCESS AND ALL CHEMICAL MATTERS PERTAINING TO THE MANUFACTURE OF PULP AND PAPER.

COCHRANE CHEMICAL CO.,

55 Kilby Street,

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Alum.

Manufacturers of

Highest tests, free from iron, and all other grades used by paper makers.

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CARMINE No. 40.

Warranted Strictly Pure.

SOLUBLE BLUE. PULP COLORS.

ALSBERG & PFEIFFER, Manufacturers, NEW YORK.

A. WERTHEIM & CO.,

HAMBURG, GERMANY,

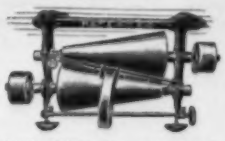
Exporters of all Grades of

Sulphite and Soda Pulps.

SIGMUND GOLDMAN, Agent for the United States and Canada,

BENNETT BUILDING, 99 NASSAU STREET, NEW YORK.

EVANS FRICTION CONE PULLEYS.



Countershaft for Driving Machinery Requiring Different Speeds.

FORTY-SEVEN different patterns, transmitting from ONE to FORTY horse power, changing the speed of all kinds of machinery while running. Thousands of Cones in use. *SEND FOR CATALOGUE.* The following is a partial list of manufacturers who have Evans Friction Cone Pulleys in successful operation, transmitting from one to forty horse power.

JOHN & JAMES DOBSON, Phila., Pa. 34 sets, 2 H. P.
NEW YORK BISCUIT CO., New York. 67 sets, 5 H. P.
STERLING DYEING CO., Sterling, Conn. 10 sets, 6 H. P.
NONOTUCK MILLS, Holyoke, Mass. 16 sets, 6 H. P.
MR. S. D. WARREN, Cumberland Mills, Me. 8 sets, 40 H. P.
MASSASOIT PAPER CO., Holyoke, Mass. 2 sets, 40 H. P.
STINSON BROS. & KURLBAUM, Phila. 40 sets, 1 H. P.
MERRIMACK MILLS, Lowell, Mass. 13 sets, 6 H. P.

G. F. EVANS, Proprietor, 85 Water Street, Boston, Mass.

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WHITMORE MANUFACTURING CO., HOLYOKE, MASS.

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COATED LITHOGRAPH AND CHROMO PLATE

PAPERS AND CARD BOARD.

WHITE, TINTS AND COLORS.

PASTED WEDDING BRISTOL A SPECIALTY.

CASTLE & GOTTHEIL,

IMPORTERS OF

Sulphite and Soda Pulps,

LINEN AND COTTON RAGS,
JUTE STOCKS, SIZING, &c.

TIMES BUILDING, 41 PARK ROW. Rooms 188, 189 and 190. NEW YORK.

The Paper Trade Journal.

DEVOTED EXCLUSIVELY TO
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Single Copies, . . . 10 Cents.

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BRANCH OFFICES:

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Boston Office—A. L. DELESDERNIER, General Manager, 64 FEDERAL STREET, BOSTON, Mass.

London Office—ARTHUR MORRIS, General Manager, No. 1 MITRE COURT, FLEET STREET, LONDON, England.

NEW YORK, SATURDAY, NOVEMBER 28, 1896.

SOME three months ago, owing to a disagreement between partners, a receiver was appointed for the firm of Howard Lockwood & Co. This week the entire business has passed into the hands of Howard Lockwood & Co., a corporation, the receiver having been discharged. The officers of the new company are C. Alers-Hankey, president; L. Alers-Hankey, treasurer, and Colin K. Urquhart, secretary. Mrs. Alers-Hankey, the senior member of the old firm and the president of the new corporation, was the widow of the late Howard Lockwood, who founded the business and carried it on successfully up to the day of his death. The interest of William P. Hamilton, the junior member of the old firm, has been acquired by the new corporation, which will continue the publication of THE PAPER TRADE JOURNAL, the *American Stationer*, the *American Bookmaker*, &c., on the lines laid down by their founder, and will make them more and more necessary to the members of the trades which they represent by such improvements as may be suggested from time to time. Readers of and advertisers in these papers may rest assured that the reputation established in the past will be fully maintained in the future.

CANE fibre is again coming to the fore. A Southern mill is reported to have secured good results in the conversion of cane into paper making material. Years ago this was attempted, and some of our readers will doubtless remember the history of the process and the "gun" employed for the reduction of the stock. Processes developed since then may have overcome all difficulties heretofore experienced. Cane, if it can be converted into fibre economically and on a commercial basis, may prove to be a great accession to paper making materials.

IT is reported that the cut of spruce for pulp making purposes will be larger this winter in the East, and particularly in Maine and New Hampshire, than it ever has been, and that the pulp mills will consume more of this wood than the saw mills. In this connection we have to repeat our advice not to denude the timber lands of their forests for the sake of present gain. The water supply of New England has already decreased to an alarming extent, and promises to be yet further impoverished by the loss of the forests. It is intimated that the unusual cut promised for the coming season will be due to the fear of an export duty on pulp wood from Canada or to tariff contingencies which may lead to the limitation or suppression of the supply from the Dominion. It may be that this anxiety is unwarranted, for although the export duty on pulp wood is strongly supported in Canada, there are as yet, we believe, no indications that it will be levied. Of course we cannot forecast the results of the labor of the tariff commission now sitting in Canada; but as the logical outcome of such a tariff move on the part of Canada would lead to the imposition of duties by our Congress upon all classes of lumber exported thence, and as the evident desire of the present Dominion Government is for commercial reciprocity with us, we express the doubt that an export duty on Canadian pulp wood will be laid.

IT is quite evident that there is changing opinion on the issues of free trade and protection in the United Kingdom. Not only the paper makers but other British manufacturers as well have felt severely the inroads on their home market by foreign producers, and our friends in Great Britain can bear witness that we have disinterestedly advised them to demand that moderate degree of protection which will enable them to bear up against the aggression which has been driving them to the wall. At one time such a proposition would have excited a storm of censure if made openly by a British journal, but that times and opinions have changed is made plainly evident by the *Argus*, published at Bradford, England, which in one of its recent issues said: "Had anyone predicted four years ago that it would be possible for the Bradford worsted industry as a whole, depending as it does so largely for its prosperity on a free entry to American ports, to be found arrayed on the side of McKinley and high protection, there would have been reasonable grounds to express doubts as to his sanity. But impossible as such a change of sentiment would have appeared four years ago, or even a twelvemonth ago, it has actually occurred." The competition with which English woolen goods manufacturers have to contend is akin to that experienced by paper makers, and possibly it is greater. Our own textile industries have suffered from the changes which the existing tariff has effected and the competition engendered thereunder. Bradford has profited at their expense, and yet it finds competition still too great to be borne. If protection is not given the wages of labor must be reduced to the Continental level, and labor agitation with its attendant evils will again be rife.

A CURSORY review of immigration reports, as furnished by the Commissioner General of Immigration in his annual report, is interesting as bearing on the wage question, and increases in importance now that rumors of renewed prosperity promise to bring the Europeans down upon us with a rush. Of these incomers Germany has given us since 1820 about 5,000,000 souls, Ireland, 3,800,000 alone, and together with England, 7,000,000. The past fiscal year saw the arrival of 343,267 persons in the aggregate, the majority being skilled and unskilled laborers, who brought with them about $4,000,000. This goes to show that it is not so much the question of number with which our legislation will have to deal, nor with physical disability, as these new comers are sound and healthy; but the problem will turn rather upon the education and moral character of these people and the means necessary to distribute them more widely. When we consider that the mass of immigrants of late years has come from Poland, Russia, Austria-Hungary and Italy, and that among them there is a marked degree of illiteracy; and when it is noted that of the 37,374 illiterate Italians who landed in America last year the bulk of them halted at our seaport towns, congesting them and aiding in the spread of disease, it seems to be time that some educational test shall be applied to these embryo voters and that they should be induced to move southward, where the call for immigration is heard, or to the central West, where the number of farms of a profitable size has increased and is yet increasing.

Watermarks.

BY DANDY.

Another holiday has passed into history, and the stock of turkeys in the country has been greatly diminished by Thursday's onslaught. Some people had special reasons for giving thanks, but everybody could join in the chorus by remembering that the record of the year now drawing to a close is not so bad in very many ways as it might be.

Every little while a mathematical genius gets loose and trots out a lot of figures, which nobody disputes, everyone accepting them because, perhaps, they have not the information at hand to show any other result. In this line a Buffalo paper says: "A statistician has learned that the annual aggregate circulation of the papers of the world is calculated to be 12,000,000,000 copies. To grasp any idea of this magnitude we may state that it would cover no fewer than 10,450 square miles of surface; that it is printed on 781,250 tons of paper, and, further, that if the number 12,000,000,000 represented, instead of copies, seconds, it would take over 333 years for them to elapse. In lieu of this arrangement we might press and pile them vertically upward to gradually reach our highest mountains. Topping all these, and even the highest Alps, the pile would reach the magnificent altitude of 490, or in round numbers 500 miles. Calculating that the average man spends five minutes reading his paper in the day (this is a very low estimate), we find that the people of the world altogether annually occupy time equivalent to 100,000 years reading the papers."

The reading of that paragraph ought to make the manufacturers of print paper feel, that after all, there may be some possible use for the machines now being constructed, and which are to put product on the market.

"Say, Blue Cottons, you are pretty well posted. How long ago did Outshot get 5 cents for his 'super' paper?"

"I don't know. It was B. C., I guess. I have been in the trade forty years and I never heard of his getting any such price."

A Brooklyn physician who administers to the ailments of a member of the trade is now the object of a very hearty laugh. He had a cow which he wished to dispose of, and finally offered it to his butcher. The knight of the cleaver said that the meat would probably be tough, would not be suitable for his trade, and, besides, he did not wish to go into the slaughtering business. At last, however, he bought the animal, and within a short space of time the doctor, who trades at the butcher's, began to complain that his steaks, roasts, &c., were tough. The butcher protested that he could not understand it, and the complaints became very steady. It now appears that the butcher retained that cow's meat for the M. D.'s special use and sold back to him, piece by piece, nearly the whole animal.

The doctor is not saying a great deal. He is waiting and watching, and if that butcher ever calls on him in a professional capacity I pity the tradesman. Cow's meat will be a luxury such as he will delight in when the physician gets through with him.

A paper dealer who makes a specialty of Chinese trade some time ago sent out a circular quoting prices, there being a mistake made in one, the value being put $1 too low. The sons of the Flowery Kingdom flocked to the place, and even now it makes that dealer tremble to think of the time he had in explaining to the continuous stream of Celestials that an error had been made. He says that trying to get a shirt out of a laundry without having the necessary "tickee" isn't a circumstance to it.

An envelope manufacturer tells me that, considering only the establishments which devote their energies to the special line in which he is engaged, there are produced daily about 23,000,000 envelopes. That is the biggest reason yet given as to why envelopes are so cheap.

A gentleman who is known to many in the paper trade recently established himself in a new line, and issued a circular letter stating that he would place all kinds of insurance, fire, marine, casualty, liability, burglary, &c. The circular evidently fell into the hands of a well-informed cracksman, who wrote back as follows:

"You are just the 'Yellow Kid' the men of my profession are looking for. Nowadays we are running on hard lines. Householders are fast becoming good shots, and silverware and other valuables are too often kept in safe deposits, so that our pay is not at all what it ought to be, considering the risk we run. A fellow can scarcely make a living for himself and family. Let me know your rates on a policy insuring me a "find" when I do any business in my line."

The policy has not yet been issued, and the "Yellow Kid" is under the impression that the artist of the "jimmy" misunderstood the purport of the circular.

An importer of paper stock, terra alba, &c., has a new customer for the second named material. He sends it to a sugar refinery as terra alba, but it presumably reaches the public as powdered sugar.

I had occasion the other day to walk through Little Italy, which is located in and around Mulberry Bend, and I made the discovery that this notoriously bad section is becoming civilized—first, because some of the old huts and filth have given way to a wide and airy park; and second, because I saw an Italian scion proudly marching along with a banner on which was inscribed the device: "Paper and Associated Trades."

A member of a well-known chemical manufacturing firm who was recently elected to the board of trustees of a reformatory institution in his town in New Jersey took a decided stand for reforming the reformatory, and was supported by the mayor and some of his fellow members.

As the c. m. seems likely therefore to make a success as a reformer of reformatories, I suggest that the chemical market could easily stand a little reforming too.

If the c. m. will apply his talents for bringing about reform to reducing the prices of chemicals the whole paper trade will rise up and call him "blessed."

A short time ago a New York paper box manufacturer, with whom the mayor afterward (presumably in consolation of the p. b. m.'s broken spirits or broken pocketbook) sipped tea (not catnip), lost a cat valued at, it is said, $2,000.

A reward of $200 is offered for his or her safe return. This is called to the attention of the trade, so that if they should now hear any felines courting out loud on the back fence they will think twice before casting a stone.

A gentleman tells me that he considers it a sign of a good business man that he has not changed his methods of doing business during the hard times.

If that is a correct standard then a manufacturer who combines the manufacture of bicycles with making paper falls short of the ideal business man.

There is one such in the Nutmeg State.

Communications.

National Association of Manufacturers.

CINCINNATI, Ohio, November 18, 1896.

Editor Paper Trade Journal:

The date for holding the second annual convention of the National Association of Manufacturers has been fixed for January 26, 27 and 28, 1897, at Philadelphia, Pa.

It is expected that this convention will be one of unusual interest, as the president will submit a report of the first full year of practical work in the lines mapped out by the original convention held in Cincinnati January, 1895.

This report will describe the initiation of practical movement in the direction of the cardinal principles originally adopted by the association, and very gratifying progress in various directions will be noted. It will then devolve upon the convention itself, which will embrace the recorded members holding certificates in the association to pass upon the work which has been done, and to indicate a policy to be pursued by the president and executive committee during the next year, in which year it is confidently expected that existing conditions will enable the association to make vigorous progress. E. P. WILSON, Secretary.

Conveying Belts.

Editor Paper Trade Journal:

Since writing to you of a system of conveying belts, a description of which was published in THE PAPER TRADE JOURNAL October 10, I have ascertained that a properly arranged belt conveyor is not benefited to any great extent by the addition of ropes as described; secondly, a properly constructed belt conveyor of the dimensions given will do much more work than stated.

GEORGE D. RICE.

Trade Talks.

Mr. Scott, of Darmstadt & Scott, New York—This firm dates from 1855, when Mr. Darmstadt went into business. I became associated with him about 1862. We have been subscribers to THE PAPER TRADE JOURNAL, as well as Lockwood's Directory, since they were first issued up to the present time. Prior to the time that Mr. Lockwood brought out his directory I had been a subscriber to a written directory, which, I think, was published, or at least sold, in New York, and for which I paid $40 a year, although if I remember rightly the price was $50. I mean by "written" that it was not printed, but done with pen and ink. It was a book of about 8 inches square and from one-quarter to one-half of an inch thick and contained the names of perhaps fifty or seventy-five paper mills. If I recollect, it contained nothing except the names of paper manufacturers and was mainly of value to the paper stock and rag men. I presume that the reason why the directory was not printed was because of the small demand for it or the expense which would be entailed. There is quite a difference between it and Lockwood's Directory to-day, although the latter was quite small when it was first issued. The way it has increased in size shows how the trade has developed, and to-day Lockwood's Directory is an absolute necessity to all who are engaged in the paper trade at all. There has been quite a change since then. Where there was one mill then there are twenty now, and a 3 ton mill was considered very large. An order for 10 tons of stock was then looked upon as a big order. Now 100 tons is considered a good order. Then there were no rag importers. All rags used were domestic. There was no such thing known as ground wood and sulphite fibre, which have cut into the rag business very much. There were not even any jute butts used. For a while white paper was made out of straw, but the ground wood and sulphite succeeded it, and now no white paper is made out of straw. In those days nothing but rags, rope and manilla bagging were used in making paper. This branch of the trade was then divided into two distinct kinds—paper stock dealers and rag dealers. The dealer in paper stock did not have anything to do with rags, and the rag dealer did not have anything to do with paper stock; but when one or the other received rags or paper stock it was sent to the rag or paper stock packer, as the case may be. Since then the rag dealer has become a paper stock dealer and the dealer in paper stock deals also in rags, and they are now usually classified together. There were at that time only about three concerns which made a business of shipping stock to the mills, and there were in addition probably five or six rag men in the same business. I am now referring to New York alone. There were of course plenty of small packers, who sold to the large packers, but there were, as I have said, only about a dozen houses which carried on what we may call a wholesale business. Then every town of any impor-

tance had from one to two dealers, the most of them only one. To-day the rag trade has grown to large dimensions, and the list printed in Lockwood's Directory is quite correct, I think, both of those who are located in New York city alone and those who are distributed throughout the country. As to business, there has been a very considerable improvement since the election. Yes, I lay it to the election so far as the restoration of confidence is concerned. There has not, however, been any advance in the prices of rags except in a few grades, mostly of the lower kind, such as thirds and blues. We don't have to look for any orders for these now. Orders come to us faster than we can take care of them. The same is true of the lower grades of papers. Such wastes as white shavings are in good demand, and the probability is that prices will also soon advance on them because of the increased demand. This grade is very scarce in bulk. The same might be said to also apply to flat book stock, which is very scarce and the prices for which are stiffening daily.

Changes, Removals and New Firms.

Foster & Bell, printers, Baker City, Ore., have sold out.

Melville W. Wright, publisher, Akron, Ohio, has sold out.

F. A. Bowen. publisher, Huntington, Ore., has sold out.

The *Dover Review*, Dover Plains, N. Y., is a new paper.

The *Reporter*, Galt, Ont., is now published as a daily paper.

Chris. Remckel, publisher, Colfax, Cal., has sold out to Iran H. Parker.

D. D. McDonald, publisher, Los Banos, Cal., has sold out to Frank S. Smith.

Louis Skinner, stationer, &c., Traverse City, Mich., has sold out to Wm. Lockhart.

The *Review* Printing Company, Limited, Windsor, Ont., is applying for incorporation.

W. J. Mitchell, proprietor of the *Chronicle*, Durham, Ont., has sold out to a Mr. Irwin.

Kerr & Trice, publishers, Searcy, Ark., have been succeeded by Audigier & Holloway.

C. F. Ketcham & Co., stationers, New York, have been succeeded by Thomas Nolan.

G. H. Lamberton, stationer, Fargo, N. Dak., has been succeeded by Henry Amenland & Co.

Wren & Phelps, publishers, Wynne, Ark., have removed to Walnut Ridge, same State.

The *Post* Publishing Company, Fort Wayne, Ind., has transferred its property to a trustee.

The *Trade Press*, Chicago, Ill., has changed its name to the *Advertising Experience*.

J. D. Welch, publisher of the *Blade*, Independence, Mo., has been succeeded by Joseph McCoy.

Griffith & Sawyer, publishers and printers, Boonville, N. Y., have been succeeded by I. G. Sawyer.

The Southam Printing and Lithographing Company, London, Ont., is applying for incorporation.

Samuel Falkenbury, bookseller and stationer, Susquehanna, Pa., has sold out to French & Albaugh.

Waterhouse & Gibson, dealers in wall paper, &c., Jamestown, N. Y., have dissolved partnership.

Cobb & Freeman, booksellers and stationers, Cheboygan, Mich., have been succeeded by H. Hale Cobb.

The Challenge Grinder Company, Rochester, N. Y., has been organized to manufacture the Eilers pulp grinders.

The McDowell Stationery Company has opened a stationery, &c., store at 212 Washington avenue, Scranton, Pa.

J. G. P. Holden, publisher of the *Evening Gazette*, Yonkers, N. Y., has sold out to the Yonkers *Gazette* Company.

King & Skelly, booksellers, stationers, wall paper dealers, &c., Janesville, Wis., have been succeeded by R. W. King.

The *Dutchess Wheelman*, Poughkeepsie, N. Y., is a new monthly magazine published by the *Dutchess* Publishing Company.

John E. Cartwright, (formerly) publisher, Harrisburg, Ore., has been succeeded by the Harrisburg *Review* Company.

Edward Perry & Co., booksellers, stationers, &c., Charleston, S. C., have sold out to M. L. Barragan, who continues the business at the same stand, 217 Meeting street, that city.

The *Herald* Publishing Company, Quebec, Que., is to be incorporated with a capital stock of $100,000. Directors, Robert Mackay, J. Hodgson, R. C. Fisher, Jas. S. Brierly, Robt. Bickerdike, Thos. A. Trenholme and Geo. Sumner.

The International News and Publishing Company, New York, has filed a certificate of an increase in its capital from $10,000 to $25,000.

W. D. Kehoe, publisher of the *Express*, Sault Ste. Marie, Ont., has sold out to Chas. N. Smith, formerly of the Toronto, Ont., *News*.

The *Industrial Advocate*, Halifax, N. S., is a new monthly magazine which will be issued in the interest of industry and mining at Halifax.

The *Review*, Windsor, Ont., has passed into the hands of a stock company, of which J. H. Long and F. H. Macpherson hold the controlling interest.

The *American Queen*, New York, is a new monthly fashion paper to be published by the *Dry Goods Economist*. The first number will be out on January 1, 1897.

The National Paper Stone Company, Buffalo, N. Y., has been incorporated to manufacture paper stone compositions, roofing and wall plaster. Capital, $50,000; and directors, Arthur H. Martin, W. G. Thatcher, Robert E. Tinker, and others of Buffalo.

The U. S. Blank and Stationery Company, New York, has been incorporated to manufacture law blanks and stationery. Capital, $10,000; directors, Lawrence S. Forbes, of East Hartford, Conn.; John F. Hitchcock, and William O. Campbell, of New York city.

Failures.

John N. Near, printer, Bridgeport, Conn., has made an assignment.

George Belleau, stationer, Plessisville, Que., has made an assignment.

The Naticnal Printing Works, Louisville, Ky., have made an assignment.

Adeline C. Brigham, stationer, &c., St. Louis, Mo., has made an assignment.

George H. Tyler, publisher, Cincinnati, Ohio, and Chillicothe, Ohio, has made an assignment.

The assignee of Jones & Armstrong, stationers, Rome, N. Y., has paid a dividend of 19 per cent. to the creditors.

Charles P. Randall, assignee of the Hadley Paper Company, Holyoke, Mass., has issued a statement to the creditors, showing liabilities of $43,201 and assets of $7,515. It is said that it is the desire of the creditors controlling one-half of the liabilities that the assets shall be converted into cash as soon as possible. To precipitate the company into insolvency would be a sacrifice of the assets, from which the creditors would derive little or nothing.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D. trust deed, and Real a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
George A. Hurd, Bridgeport, Conn. (B. S.)...	$800

MIDDLE STATES

J. F. Whitney, New York city.....	900

WESTERN STATES.

Geo. W. Jenkins (Jenkins & Lyons), Santa Maria, Cal. (Real).....	1,400
John Kolp (Wright & Kolp), Denver, Col....	378
Jesse A. Winger, Reynolds, Ill.....	300
Riley H. Denny, Portland, Ind.....	2,100
Wm. Armstrong, & Son, Roland, Ia.....	—
A. B. McQueen, Atchison, Kan. (Real).....	721
F. C. Flory, Howard, Kan.....	200
John B. Herman, Olathe, Kan.....	1,350
Z. Demeules, Minneapolis, Minn	252
Herman Hennig, Minneapolis, Minn.....	450
Watson-Stoddard Poultry Company, Kearney, Neb.....	361
Wm. P. Roehl, Cincinnati, Ohio.....	300
David S. Fisher, Delaware, Ohio.....	270
The *Democrat* Printing Company, Marion, Ohio.....	650

SOUTHERN STATES.

H. J. Pigott, Atlanta, Ga	1,000
Sheppard & Folsom, Reidsville, Ga.....	500
G. F. Davis, Kansas City, Mo. (B. S.).....	5,780
Jas. Todd (Todd & Condon), Maryville, Mo. (Real).....	1,000
Guenther & Bender Company, St. Louis, Mo.	300
H. Henochsburg, Memphis, Tenn. (T. D.)....	9.000

LIENS DISCHARGED.

R. Y. McBride, Los Angeles, Cal.....	—
P. M. Diers, San Francisco, Cal.....	100
Geo. W. Jenkins (Jenkins & Lyons) Santa Maria, Cal.....	352

Personals.

Henry Lindenmeyr, Jr., returned from Genoa this week on the Columbia.

Otto Meyer, Jr., of the firm of H. Meyer & Co., Lübeck, Germany, exporters of all grades of paper stock, is now on a visit to this country.

E. J. Merriam, who has been confined to his home by sickness for ten days, is improving and will shortly be able to be at business again.

John Merriman's contract with the Orono Pulp and Paper Company expired on November 1. Mr. Merriman has put the company's mills in good condition and they are now running entirely on orders. The mills have been shut down for some months on account of the failure of the Bangor Pulp and Paper Company, lessee. It is rumored that Mr. Merriman will take a new mill in the West.

Fritz Lindenmeyr, son of the late Henry Lindenmeyr, was married last Wednesday evening to Marie Dale Dickson, at 103 Taylor street, Brooklyn. On last Saturday evening the employees of the house gave the groom a banquet at Eckstein's, 62 East Fourth street, New York. Walter W. Banta presided, and about 100 of the employees were in attendance. Mr. Banta and others made speeches and there was excellent vocal and instrumental music. The event was a success in every way.

Fires.

The stock of J. H. Kelly, stationer, &c., West Chester, Pa., has been damaged over $500 by fire.

Lowensburg, Nichols & Worth, printers, Boston, Mass., were damaged by fire on November 21.

The stock of E. Schmit & Co., stationers, &c., Indianapolis, Ind., has been damaged by fire and water.

Accidents.

Thomas McLaughlin, a machine tender employed by the Glens Falls Paper Mill Company, Fort Edward, N. Y., had three fingers of his left hand and one on his right hand badly crushed in the calenders on November 14. Amputation was necessary.

John Anthony, a backtender, employed at the Ontario Company's mill, Brownville, N. Y., accidentally got the first finger of his right hand caught between two calender rolls last Wednesday, badly crushing it. Amputation of the member was found necessary.

Roland F. Carr, an employee of the Carew Manufacturing Company, South Hadley Falls, Mass., received serious injuries on November 23. While throwing a belt on top of one of the filters he was struck by a revolving clutch coupling, suffering a severe scalp wound on the back of the head.

A barker at the pulp mill of the Smith Paper Company, Lee, Mass., broke on November 18, while in operation. The fragments were thrown with great force. Julius Dupont was struck on the chest and head and bruised and otherwise injured so as to require medical attendance, although no bones were broken.

Charles Cory, employed at the mill of the Geo. W. Wheelwright Paper Company, North Leominster, Mass., got his right hand caught in the machinery of a Fourdrinier on November 20. His thumb and hand were badly jammed, and the hand was so firmly held that the felt had to be cut in order to release it.

George Wilder, aged twenty-one, an employee of the St. Lawrence Paper Company, Dexter, N. Y., had a thrilling experience on Wednesday night of last week. He was on night tour, and at 10 o'clock went into the mill basement, where the large agitators are located. Wilder opened the agitator door to let the water out, so as to fill it with a new stock of a different kind, when, his foot slipping, he fell into the slowly moving gearing. Striking on his left side his clothes were torn to shreds, and the flesh from the left hip to the foot was bruised and terribly lacerated. Having his right arm free Wilder, with admirable presence of mind, threw the belt off the pulley, stopping the gearing. Freeing himself he crawled back through the basement to the pulp room, and upstairs to the machine room, where he was found by his fellow workmen, who assisted him to the office. Medical attendance was summoned. There were no bones broken, but the left leg was badly mangled. The man is improving.

Tariff Decisions.

The Board of General Appraisers has rendered decisions in the following cases:

Chas. H. Wyman & Co. *v.* Surveyor at St. Louis—Paper bags designed as containers for tea, bearing a decorated advertisement printed in ink colors and bronze. They were assessed at 25 per cent. under paragraph 311 as printed matter, but claimed at 20 per cent. under paragraph 313 as manufactures of paper. The board held that the paper bag is the main feature and sustained the protest.

S. T. Percy *v.* Collector at Port Huron, Mich.—Pamphlets, printed by the Bible and Tract Depot, of Toronto, Canada, which were claimed to be free under paragraph 410, as publications of individuals for gratuitous private circulation. The board held that the Bible and Tract Depot is not an individual, and overruled the protest.

Kaufmann & Strauss *v.* Collector at New York—Slate note books and perpetual calendars, assessed as manufactures of surface coated paper. The board found that the note books are manufactures of which paper is chief value. The claim that they are dutiable at 20 per cent. under paragraph 313 was sustained. The claim that the calendars are dutiable at 20 per cent. under paragraph 313 was overruled.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, November 27, 1896.

THE MONEY MARKET.—The stock market was dull on Wednesday, and most of the moving shares closed at lower figures. Call loans on stock collateral were easy at 2 @2½ per cent. Time loans were still in small request. Business was mostly at 3½@4 per cent. for all dates. Commercial paper was quoted at 4¾@5 per cent. for sixty to ninety day indorsed bills receivable; 5@5¼ per cent. for first class and 5½@6 per cent. for good single names. There was a large supply of paper in the market. Most of the notes now coming into the market are those of manufacturers, and they are in many cases received from points outside of this State. Current report has it that some business in paper has been done at concessions from the rates above quoted directly between sellers and the banks. Foreign exchange was inactive but steady. Posted rates were $4.83⅔ for sixty days and $4.87 for sight. Actual rates were $4.82¼@4.83¼ for sixty days and $4.86@4.86½ for sight.

THE PAPER TRADE.—The market does not show any unusual features this week, business being broken to some extent by the Thanksgiving holiday. There is a fair degree of business in all lines, and the feeling is that there is a slow yet steady advance being made. Wrapping papers are more active, orders coming to hand more freely. Some Book mills report more business, while others say that there is no more product called for, while Writings are in better call. The News makers continue their work in the consolidation line, and reports indicate that there is to be a successful outcome of the work.

JUTE BUTTS.—The market continues very quiet, and unchanged.

WOOD PULP.—There is a very fair call for Ground Wood and prices range about as they have before, say $15 f. o. b. at the pulp mill.

WOOD FIBRE.—Sulphite is moving steadily, and Bleached grades are well sold ahead. There is an ample stock of Bleached Soda in the market, but makers are looking for a more active market and a hardening of prices. Domestic Soda is selling at 1⅞@2c. Domestic Sulphite is quoted at 1¾@2c., as to quality, for Unbleached, and 2¼c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 1¾@2½c.; Bleached, same process, 2.30@3¼c.; Unbleached, sulphite process, 2.05@2.55c.; Bleached, do., 3@3¼c.; Bleached Straw Pulp, 3½c. This week there was no Chemical Fibre imported at the port of New York.

FOREIGN RAGS AND PAPER STOCK.—The conditions in the market for foreign rags are unchanged, and the high views held by packers across the water act as a check to business. Blue Cottons are quoted at 1.35@1.40c., but no sales are reported. Imports aggregated 2,517 bales, being 1,661 bs. rags, and 856 bs. manillas. Ports of shipment and quantities are as follows: Antwerp, 329 bs. rags, 620 bs. manillas; Bremen, 582 bs. rags; Colon, 47 bs. rags; Hamburg, 345 bs. rags; Havre, 95 bs. manillas; Leghorn, 109 bs rags; London, 38 bs. rags, 70 bs. manillas; Marseilles, 71 bs. manillas; Rotterdam, 211 bs. rags.

DOMESTIC RAGS.—The market for domestic rags is unchanged, and prices rule as heretofore, with holders of street lots firm in their views.

BAGGING, &c.—The market for Gunny Bagging is quiet, and .80c. continues to be the nominal quotation. Imports of Manilla stock for the week aggregated 856 bales, being 620 bs. from Antwerp, 95 bs. from Havre, 70 bs. from London and 71 bs. from Marseilles.

OLD PAPERS.—Papers are moving very steadily, and the demand for shavings has quickened a little. We quote: No. 1 Hard White Shavings, 1⅞@2½c.; No. 1 Soft White do., strictly free from wood, 1⅝@1¾c.; Soft White do., ordinary, 1⅛@1¼c.; Old Ledgers, 1⅝@1⅞c.; Solid Printed Books, 1@1.10c.; Mixed Shavings, No. 1, ¾@⅞c.; Mixed Shavings, No. 2, .65c.; Extra No. 1 Manillas, .90@1c.; No. 1 Manillas, ordinary, .75@.85c.; No. 2 Manillas, .60c.; Light Book Stock, .60c.; Folded News (over-issues), .50c.; Mixed Papers, .35c., Commons, .25@.30c.; Straw Clippings, .37½@.40c.; Binders' do., .45@.50c.

STRAW.—The market is tame, the demand being scarcely up to the offerings. We quote: Long Rye, No. 1, at 90@95c.; Long Rye, No. 2, at 80@85c.; Short Rye at 60@70c.; Oat at 35@45c.

ROSINS.—The Rosin market is quiet and uninteresting. We quote: Common to Good Strained, $2.15½; E, $2.17½@2.20; F, $2.20@2.22½; G, $2.22½@2.25; H, $2.25; I, $2.30@2.35; K, $2.40; M, $2.50@2.55; N, $2.80@2.85; W. G., $2.95@3.

CHEMICALS.—The market for paper makers' chemicals is not active, but there is a fair amount of trade. Under date of November 10 J. P. Brunner & Co. speak of the Liverpool market as follows: "The chemical market is showing a better front now, and buyers evince more disposition to operate. Soda Ash is in rather better request and steady. We quote spot range for tierces, as to market, about as follows: Leblanc Ash, 48 per cent., £4 to £4 5s. per ton; 58 per cent., £4 5s. to £4 10s. per ton, net cash. Ammonia Ash, 49 per cent., is held at £3 to £3 10s. per ton; 58 per cent., £3 5s. to £3 15s. per ton, net cash; bags, 5s. per ton under prices for tierces. Soda Crystals are selling to a fair extent at £2 5s. to £2 7s. 6d. per ton, less 5 per cent. for barrels and 7s. less for bags. Caustic Soda is more inquired for, and in some cases higher prices are demanded for outside makes. On spot we quote range, as to market, about as follows: Sixty-six per cent., £6 2s. 6d. to £6 5s. per ton; 70 per cent., £6 2s. 6d. to £7 5s. per ton, net cash; 74 per cent., £8 5s. to £8 7s. 6d. per ton; 76 per cent., £8 15s. to £9 per ton, net cash. With regard to the combination reports nothing definite is yet known. Sales are reported of 70 per cent., for delivery over 1897, at £7 to £7 5s. per ton, which is a smart advance on quotations ruling a fortnight ago. Bleaching Powder is firmer, but without quotable change, hardwood ranging from £6 12s. 6d. to £6 17s. 6d. per ton, net cash, as to destination." In the New York market Bleaching Powder is in fair demand, especially for contracts, and on spot, with supplies very limited; prices are very firm. Caustic Soda is firmer, and there is a better movement both on spot and for next year. Alkali is having some attention, but prices do not advance any, and Sal Soda is doing a fair business, recent arrivals having gone direct into consumption.

CHINA CLAY.—There has been more demand for carload lots of late, and a considerable quantity of stock has been moved into consumption on such orders. The demand comes chiefly from the potters, although the paper makers have also been showing rather more interest. Potters' grades are in rather light supply, but the high grades, suitable for paper makers' use, are fairly plentiful. The enlarged demand from the potters and the scarcity of spot supplies have made it necessary to bring over several carloads to satisfy immediate requirements. The market closes firmer, but prices are not quotably higher. The closing quotations were $15@17 for the better grades of English, and $10@12 for the medium and poorer kinds, as to grade and quantity. There has been a fair business done in domestic also. Prices are steady and unchanged at $8@10, as to quality and size of order.

TWINES.—There is a steady call for goods. We quote: Sisal Hay Rope, 5½c.; Sisal Lath Yarn, 5c.; Jute Ready, 5@6c. Twines—Jute, 18, 10½@11c.; 24, 10@10½c.; 36, 9@9½c.; Jute and Hemp, 18, 13@14c.; 24, 12½@13½c.; 36, 12@13c.; Hemp, 18, 16c.; 24, 15½c.; 36, 15c.; Marlines, Jute, 4½, 9c.; 6, 8½c.; 8, 7½c.; Jute and Hemp, 6, 11c.; 8, 9c.; American Hemp, 4½, 14c.; 6, 13c.; 8, 12c; Russian Hemp, 4½, 14c.; 6, 13c.; 8. 12c.

COAL.—There is a fair business in coal, and prices are fairly regular.

EDWIN BUTTERWORTH & CO.,
MANCHESTER, ENGLAND,
PACKERS OF ALL KINDS OF
Paper Stock, Cotton Waste and Buffalo Sizing, Wood Pulp, Moist and Air Dry Pulp, Soda and Ground Pulp,
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Our wet machine or pulp felts are *unequaled* for *durability*.
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Answers can come in our care and will be promptly forwarded without extra charge.

WANTED—A FIRST-CLASS FOUR CYLINder machine tender; state age, whether married or single, height, weight and experience; good wages and steady work to the right man. Address CYLINDER, care Paper Trade Journal.

WANTED—A THOROUGHLY COMPETENT man as superintendent for a mill making pulp and box board; state full particulars as to experience, age, and salary expected; must be strictly temperate; a permanent position for a competent man. Address PULP BOARD, care of Paper Trade Journal.

WANTED—PAPER CUTTER; MUST BE IN good condition; any width machine that will cut 36 inch rolls into sheets will answer. Address BAYLESS PULP AND PAPER CO., Binghamton, N. Y.

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SITUATION WANTED—BY FIRST-CLASS machine tender for all classes of paper; Fourdrinier and cylinder machines: twenty years' experience; good reference. G., care Paper Trade Journal.

SALESMAN WITH GOOD TRADE, EASTERN and Western pulp and paper mills, is open for engagement with first-class house manufacturing supplies for above trade. Address BRIGHTON, care Journal.

WANTED—POSITION AS SUPERINTENDent in a mill making news or manilla, by an experienced man. Address L. A., care Paper Trade Journal.

TO PAPER AND PULP MANUFACTURERS.—The advertiser, who is a practical paper and pulp maker, is desirous of a position as superintendent or foreman in a paper or pulp mill, separate or combined; thoroughly understands the erection and working of either or both; thirty years' practical experience. Address PRACTICAL, care Paper Trade Journal.

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An experienced man, fully able in every respect to take charge of the finishing department of a large coating plant, who manufacture all kinds of coated papers and cardboards of every description; permanent position and good wages; only experienced man with very best references need apply. Address COATING, care of Paper Trade Journal.

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Two 1,000 pound Jones Beaters.
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One Appleton Screen, cost $350, price $250, complete with plate.
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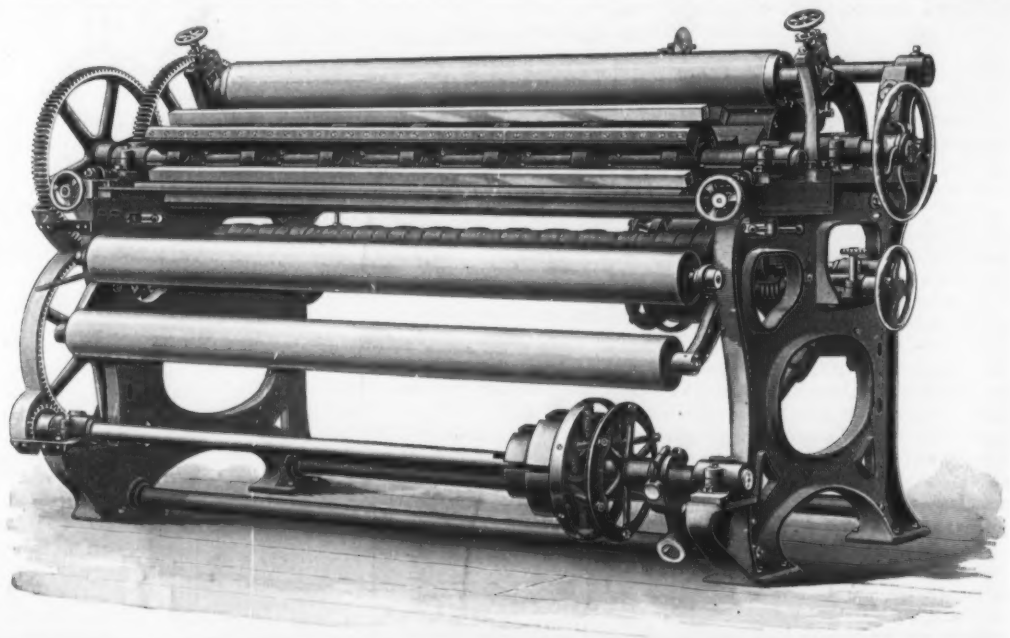

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SEND FOR CATALOGUE.

One 80 inch Rice, Barton & Fales machine, Fourdrinier, with 40 foot wire; gun metal couch and press rolls; twenty 34 × 76 inch dryers; calenders, reel, slitters and Manning winder.

One 72 inch Rice, Barton & Fales Fourdrinier, with 40 foot wire; gun metal couch and press rolls; seventeen 36 × 68 inch dryers; two stacks of calenders; reel, slitters and Manning winder.

One 74 inch Fourdrinier machine; gun metal press and couch rolls; eight iron dryers, 36 × 72 inches; calenders, reel, cutter, slitters and winder complete.

One 76 inch double cylinder machine, with gun metal press rolls; eight iron dryers, 36 × 72 inches; calenders, reel, cutter, slitters and winder complete.

One 57 inch double cylinder machine; iron press rolls; seven iron dryers, 36 × 57 inches; calenders, reel and cone cutter complete.

Two 1,000 lb. Umpherston beaters, practically new.

Two 800 lb. Umpherston beaters, in good condition.

One 76 inch Fourdrinier, part complete; fifty iron dryers from 44 to 96 inches wide; two Globe rotary boilers; one 7 × 20 foot horizontal rotary boiler; one 38 inch Cranston cutter; one stack of nine chilled rolls, 62 inch face; one seven roll stack, 55 inch face; one stack of seven chilled rolls, 64 inch face; one 80 H. P. Manning boiler.

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My attention having been called to the fact that certain parties are infringing certain Letters Patent granted to me July 23, 1889, No. 407,541, covering a beating engine for paper pulp, with a revolving bed plate. This is to notify all such persons, whether manufacturers or users of said engines, that any infringement of said patent will be prosecuted to the full extent of the law.

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One 88 inch Fourdrinier part, for 40 foot wire.
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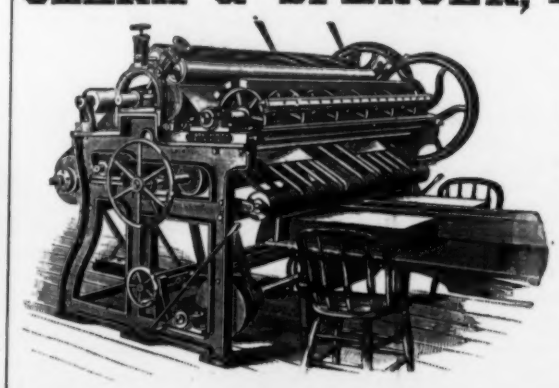

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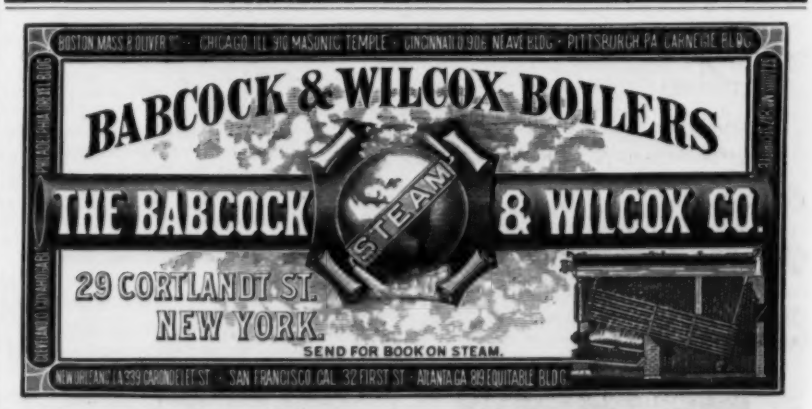
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Lithographers,
Book Publishers,
Bookbinders,
Wall Paper Printers,
Blank Book Manufacturers,
Paper Bag and Paper Box Manufacturers,
Envelope, Pad and Tablet Manufacturers,
Railway Purchasing Agents.

MILLS . . . . .

are arranged alphabetically as to States and Territories and places in each, and in a separate section of the book the different kinds of paper manufactured are classified alphabetically, and under each kind the names and addresses of its manufacturers are given.

THE MILL INFORMATION

is as follows:

Name of Mills, Officers and Capital (if incorporated), Firm Name and Address, Kinds of Paper Made, Number and Width of Paper Machines, Number of Beating Engines, Capacity each Twenty-four Hours, Post Office, Telegraph and Freight Addresses, Name of Railroad and Express, Shipping Point, Nearest Bank, Location of Mill, Steam or Water Power.

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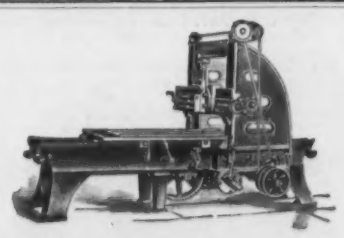

New Haven Manufacturing Co.,
NEW HAVEN, CONN.,
Manufacturers of
IRON WORKING MACHINERY.

Strength of Belting.

There is no more friction between a wide belt and a pulley than between a narrow belt and the same pulley, other things being equal, says a writer in an engineering paper. A wide belt will pull more than a narrow belt when, and only when, it is stretched tighter. For instance, take an engine properly designed to run a belt 12 inches wide; if it were possible to make from some new material a belt 1 inch wide that would be as strong as the 12 inch belt, the engine would furnish just as much power to the line shaft as if the 12 inch belt were used. When we once realize that the driving power of a belt is in its strength rather than in its width, it is easy to see why a round belt will often pull more than a flat one. For instance, a common size of belt on feed pulleys is 1 inch wide, and if one-eighth inch thick, which is about the average of 1 inch wide belt, the "area of cross-section" is evidently one-eighth of 1 inch square, or in decimals, .125, whereas the area of a round belt one-half inch diameter is .196, or a little more than one and a half times as much as the 1 inch wide belt, and will pull a little more than one and a half times as much without stretching.

THE HIGH FALLS SULPHITE PULP AND MINING CO., PYRITES, N. Y.

Unbleached Sulphite Pulp. Capacity of Mills, 20 tons per day. All sales made direct from mill. Correspondence solicited.

Will sell Pyrites to Sulphite Pulp Manufacturers or Manufacturers of Sulphuric Acid. Sulphite Pulp Makers will find it to their advantage to correspond with us as to the use of Pyrites. We can save you good money.

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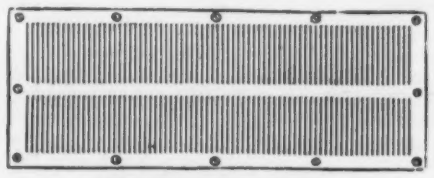
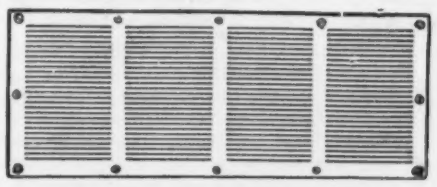
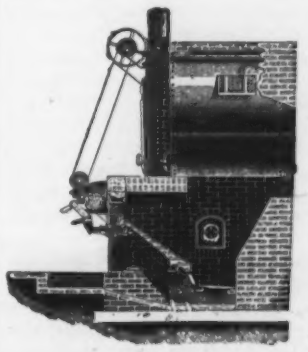
ANNANDALE
Screen Plate Co.,
PATERSON, N. J.





Manufacturers and Repairers of
SCREEN PLATES.
Our new Plates are made of the
VERY BEST METAL,
and for price and durability cannot be surpassed.
OLD PLATES RE-CLOSED.



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BRIGHTMAN FURNACE CO.
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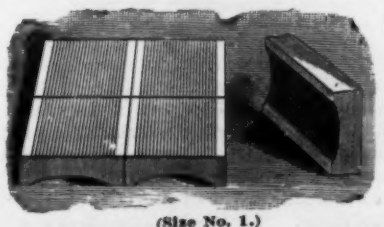
SOLE MANUFACTURERS OF THE
Brightman Mechanical Stoker
FOR STEAM BOILERS.
THE MOST ECONOMICAL IN FUEL
and the Best Device in the World for Preventing Smoke.

Felts and Jackets.
Albany Felt Co.
DUNCAN M. FULLER, Gen'l Superintendent.
Our FINE WET and PRESS FELTS are unequaled. as special care is given each Felt to make it perfect.
Albany, N. Y.



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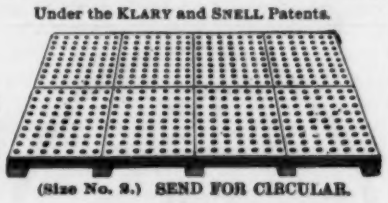

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November 15, 1896.

THE HARMON MACHINE CO.,

Watertown, N. Y.:

GENTLEMEN—We have in use six of your High Grade Centrifugul Pumps and they are working to our entire satisfaction, pumping both water and stock. It gives us pleasure to recommend your Pumps as the best Centrifugal Pumps we have ever used.

Yours very truly,

LAKE GEORGE PAPER CO.,

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CAMERON STEAM PUMP
SIMPLE, RELIABLE, COMPACT, DURABLE.
NO OUTSIDE VALVE GEAR.
ADAPTED FOR ALL PURPOSES.
THE A·S·CAMERON STEAM PUMP WORKS·
FOOT OF EAST 23d STREET, ·NEW YORK·

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MANUFACTURERS OF
PAPER MAKERS' FELTS and JACKETS.
We have not only demonstrated our ability to compete in all PAPER MAKERS' FELTS AND JACKETS, but in most lines claim to lead our competitors.
CORRESPONDENCE SOLICITED.

'96—JENKINS—'96
is the Perfection of Joint Packing.
Instantaneous, does not squeeze out and not necessary to follow up joint.
We guarantee it to last for years on any and all pressures of steam or any kind of joint where packing is required. Does NOT ROT, BURN or BLOW OUT, therefore the best for all purposes.
Call for and insist on having '96—JENKINS—'96 stamped like cut.
JENKINS BROS.
New York. Boston. Philadelphia. Chicago.

THE BEST AND CHEAPEST

GRATE BAR FOR ANY KIND OF FUEL.

W. W. TUPPER & CO.,
39-41 Cortlandt St., NEW YORK.

MUNSON BROS.,
UTICA, N. Y.,
MANUFACTURERS OF THE
"Little Giant" Turbine Water Wheel.
Also, Grinding Mills and Burr Stones for Talc Manufacturers. Estimates furnished.

THE MOST DESIRABLE
GARLOCK'S
(PATENTED)
HIGH GRADE PACKINGS
FOR STEAM, WATER, GAS, AMMONIA, ETC.
GARLOCK'S WATER-PROOF HYDRAULIC PACKING.
ECONOMICAL.
RELIABLE, DURABLE & GUARANTEED.
THE GARLOCK PACKING CO.
NEW YORK, BOSTON, PHILADELPHIA, CHICAGO, PITTSBURGH, ST. LOUIS, DENVER, PALMYRA, N.Y., ROME, GA.
SEND FOR CATALOGUE & PRICES.

CHENEY BIGELOW WIRE WORKS,
SPRINGFIELD, MASS.
Cylinder Molds, Fourdrinier Wires,
DANDY ROLLS,
BRASS, COPPER AND IRON WIRE CLOTH.

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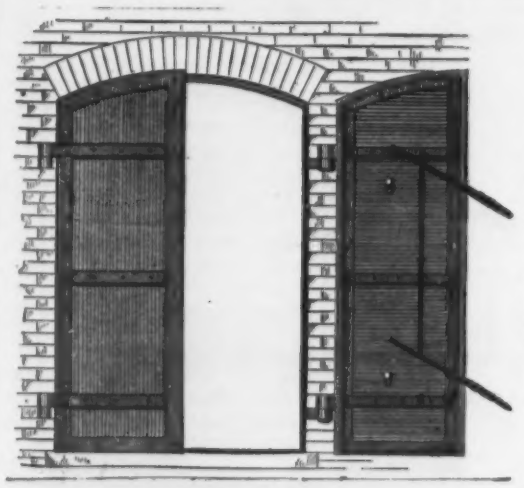
THE BERLIN IRON BRIDGE CO.,
Engineers, Architects and Builders of Iron and Steel Structures.
SEND FOR ILLUSTRATED CATALOGUE.



THE accompanying illustration shows our regular pattern of double thickness Corrugated Iron Shutters, composed of two plates of corrugated iron (with the corrugations running at right angles to each other), built into a heavy angle-iron frame, thoroughly supported by bands, flanges, hinges and latch bars, forming a fireproof shutter which will not warp twist or bend when exposed to the most severe heats.

OFFICE AND WORKS: EAST BERLIN, CONN.

Manufacturing News.

EASTERN STATES.

The claims against the Kennebec Fibre Company, Waterville, Me., for damages caused by raising the water of Lake Sebasticook have been settled. The company has been at work since last June raising the highways in Newport and the edge of Stetson that had been overflowed, and the work is not completed even yet, but the selectmen of Newport have now relieved the company from any further responsibility in the matter on payment of $367.

H. W. Keenan has been in Berlin buying heavy horses for his lumber camps beyond Rumford Falls, Me., where he has a contract to get in 6,000,000 feet for the Berlin Mills Company, of Berlin Falls, N. H.

The Webster & Ring Manufacturing Company is having the top of the flume at its pulp mill in Orono, Me., covered with plank. Last winter much trouble was caused by the ice gathering in the flume.

Among the numerous contracts which the Berlin Iron Bridge Company, East Berlin, Conn., has secured of late for steel roofs covered with corrugated iron lined with its patent anti-condensation roof lining is the roof for the new power station for the Stamford Gas and Electric Company, Stamford, Conn. The layout of this station is very convenient, and the construction is to be the very best. The engine and dynamo room is 60 feet wide and 100 feet long, and the boiler room adjoining is 40 feet wide and 75 feet long. The walls are of brick, and the framework of the roof, as well as the supports for the traveling crane in the engine and dynamo room, is of steel. The Berlin Company has the contract for furnishing and erecting all of the structural steel work.

The F. A. Rivers Company has begun to make some alterations in the boiler house of the Albion Paper Company, Holyoke, Mass. The same company is putting in a foundation of piling for the Crane Brothers at Westfield, Mass.

MIDDLE STATES.

The action brought by the Dexter Sulphite Pulp and Paper Company against the Frontenac Paper Company, St. Lawrence Paper Company, Charles E. Jones, Catherine Hunter, Phineas A. Osborne, Nelson Cook, Leonard & Gilmore Company, Henry Binninger, William Young and Charles L. Parmelee as temporary receiver of the St. Lawrence Paper Company, was tried before Justice Hiscock in Special Term at the court house at Watertown, N. Y., he reserving his decision. The action is brought to determine water rights at Dexter. The case was begun before Justice Williams in 1895, but all of the parties were not in. The testimony was mostly confined to the tracing of titles. The water privilege at Dexter originally belonged to the Dexter Village Company, which built the woolen mills now owned by the Dexter Sulphite Pulp and Paper Company. The latter succeeded, as it claims, to the rights of the Dexter Woolen Company, and to possess, therefore, a water privilege in the village superior to all others by right of priority. In 1842 the Dexter Village Company, after conveying to the woolen company the rights, divided up the other rights with various owners, but specified that the amount of water to be taken from either end of either dam should not exceed that which would pass through and be subject to the rights of the woolen company. The plaintiff in the present instance claims that the defendants are using more water than is permitted by the deeds. The dry season and scarcity of water have made the settlement of this question imperatively necessary. There is not enough water for all of the owners, and the parties cannot come to an agreement. The suit was brought to have the respective rights of all of the parties determined.

The Challenge Grinder Company, Rochester, N. Y., lately received two orders for the Eilers pulp grinder. One of these will go to Sault Ste. Marie and the other to Chicago, where it will be set up and run by steam. It is asserted that the Eilers grinder will turn out 1 ton of pulp with an expenditure of 35 horse power. The company has extended invitations to prominent pulp manufacturers to visit the Genesee Paper Company's plant and see the grinder in operation. So far the results produced from Mr. Eilers' invention have been such as to command the attention which it is receiving from manufacturers interested in grinders.

One of the largest electric plants in this country will soon be established at York Haven, Pa., at the cost of about $2,000,000 or $3,000,000, and will be about 20,000 horse power. It will distribute a current of electricity throughout the nearby towns, such as Harrisburg, Lancaster, York, Manchester and all the towns within a radius of 30 or 40 miles. It is said that the plant will be the means of the establishment of three or four large mills at York Haven. Early in the spring about 2,000 men will be put on the works in order to hasten completion. It is thought that it will take about three years to complete the plant.

The Harmon Machine Company, Watertown, N. Y., has just completed a shipment of nineteen of its high grade centrifugal pumps to one of its customers.

The Bagley & Sewall Company, Watertown, N. Y., has just completed a dog paper cutter for the Outterson Paper Company, Brownville, N. Y. This cutter is of the latest style, and is now being set up in the finishing room of the mill.

Three of the Bagley & Sewall new hydraulic wet machines have been recently sold to the Burgess Sulphite Fibre Company, Berlin Falls, N. H., and are now being shipped.

Work is being pushed by the Bagley & Sewall Company at its works in Watertown, N. Y., on the new machine to be shipped to England, and part of the machine will be shipped shortly.

Knowlton Brothers, Watertown, N. Y., are making some changes in their mills under their superintendent, Perry D. Taylor. The changes will result in great improvement. Among other things, they have set up a new Jordan engine, and have rearranged their pumps and stuff chests so as to make the machinery more convenient for the colored papers which they are making, and for which the demand is increasing.

The Harmon Machine Company, Watertown, N. Y., is in receipt of an order from the Outterson Paper Company, Brownville, N. Y., for the entire driving train required for its old machine. This will be set up in the new machine room of the Outterson Company, and will admit of the old machine being run in the old mill until the new work is ready to drive it, when it will be moved into the new quarters without any loss in production being necessary.

Frank Bosworth, treasurer of the Harmon Machine Company, has just returned to Watertown, N. Y., from an extended trip through Maine, during which he visited all of the principal mills. He secured a large number of orders for the Harmon centrifugal pumps while away, and reports a better feeling in consequence of the election.

WESTERN STATES.

The Baker-Vawter Stationery and Lithograph Company, Chicago, Ill., will locate at Kokomo, Ind., and has agreed, in consideration of a building site and free natural gas fuel, to build a brick structure 80x120 feet, and to give employment to fifty people.

At Hartje Brothers' mill, Steubenville, Ohio, a paper machine is being enlarged from a fifteen to a thirty-five dryer machine. Three rotaries are to be built to boil straw for the machine, which is to manufacture strawboard and heavy paper. Other machinery is to be put in before many months.

SOUTHERN STATES.

The plant of the Johnson-French Fibre Company, located at Highland Park, 3 miles from Chattanooga, Tenn., is now running day and night, with a capacity of 4 tons of paper fibre per day. This fibre is made from cane brought from the canebrakes of Arkansas and Alabama. This company has the latest and most improved machinery and claims that it can manufacture paper fibre cheaper than any plant in the South. If the trial is successful it is said that the capacity of the plant will be increased at once.

CANADA.

The Riordon Paper Mills, Merritton, Ont., are now using acetylene gas as an illuminant. About fifty lights have been put in. The generator consists of a small apparatus located in the basement of the mill, and the light furnished is said to be a very great improvement on that obtained from coal gas.

The Canada Paper Company, Windsor Mills, Que., has its new pulp mill completed, and the grinders are running full time. The electrical plant which this company is putting in to transmit auxiliary power from the St. Francis River dam to the upper mill will be one of the most extensive in the country.

The new works of the Waterous Engine Works Company, Brantford, Ont., recently completed, were designed for securing the greatest possible facilities for extending the company's business, which has been carried on for over fifty years. This company constructed nearly all of the machinery in the St. Maurice Lumber Company's mill at Three Rivers, and much of the machinery in Willson's mill at St. Catherines. These mills cut a large amount of pulp wood.

John Starr, Sons & Co., Halifax, N. S., have sold an electric lighting plant to the St. Croix Paper Mills Company, Hartville, N. S. Hartville is a small village in Hants County, Nova Scotia, distant about 3 miles from Ellershouse. It is a new post office, recently established and named after Mr. Hart, who is interested in the paper mill.

A patent has been taken out in England for an improvement in the manufacture of paper adapted for being written or drawn upon by means of a metal style, and for polishing and cleaning metals. The paper is coated, or the pulp is mixed with a quantity of a carbonate or an oxide, preferably oxide of zinc, when a metal style will mark the paper. The lines thus made are said to be unchangeable.

The Link-Belt Engineering Company, Philadelphia, Pa., has just issued a catalogue, entitled "Modern Methods Applied to the Elevating and Conveying of Material and the Transmission of Power." This catalogue is a price list as well, profusely illustrated, and gives a very clear idea of the carrying devices manufactured by the company. It deserves the attention of all who are interested in conveying and power transmission.

WESTERN NEW YORK.

(Continued from page 976.)

the reports of the business and the policy carried out by General Manager Morgan.

I had a pleasant interview with H. R. Blethen, of the Scranton Supply and Machinery Company, Scranton, Pa., which company furnished Mr. Okawa, the Japanese paper manufacturer, with $16,000 worth of belting for his new mills. Mr. Blethen stated that Mr. Okawa, who is the head of the Oji Paper Company, of Oji, Japan, left Chicago this week for home. He has been in this country for several months, and I mentioned his visit to this place when he inspected the mills here. It seems that he has expended some $750,000 in this country on paper and pulp machinery. Over half a million dollars was for his own company, and the other $150,000 for another company in which he is interested. Mr. Okawa bought two Fourdrinier machines from the Black & Clawson Company, of Hamilton, Ohio, and one machine for making writing paper from the Beloit Iron Works, of Beloit, Wis. He consulted two first-class mill architects, and had plans and machinery arranged and ordered for two complete pulp mills for himself. He ordered a complete outfit, so that when he returns home all that he will have to do is to build his walls, arrange his water power and put his machinery in. This enterprising Japanese paper manufacturer already has a mill which is turning out 30 to 40 tons of sulphite daily, and as much news. He will put in another sulphite mill and has ordered the machinery for that. His orders aggregate 6,000 tons of machinery, and when one comes to figure that it will take one ocean steamship to carry it all some idea of the magnitude of the contracts can be imagined.

An incident of Mr. Okawa's visit to Chicago is related. He secured permission to visit the Armour stockyards. He wanted to know how to make glue, and carefully inspected the process at the stockyards. He made a number of little notes in his book, and when he gets back to Japan will start a glue factory. He has visited this country before, and when here learned how glass bottles were made. On his return home he started a glass bottle factory, and has made quite a little fortune out of it.

The power house of the Niagara Falls

The "Hamilton" Felt.

"Best and Most Economical Made."

Wise Paper Makers

don't always want to buy high priced imported Felts, nor do they want to experiment with inferior grades of domestic ones. The "Hamilton" answers their requirements in every respect.

In ordering, mention kind of stock used, quality of paper made and speed of machine.

Shuler & Benninghofen,

Hamilton, Ohio.

Ventilating Fans, Paper Dryers, Heating Apparatus, Blowers and Engines.

AMERICAN BLOWER CO.,

SUCCESSORS TO

BUTTETT & SMITH MFG. CO.,

Detroit, Mich.

SEND FOR CATALOGUE.

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CLEVELAND, OHIO.

MANUFACTURERS OF

FOURDRINIER WIRES,

Cylinder Faces and Washer Wires.

THE GENERAL FIRE EXTINGUISHER COMPANY,

CONTROLLING THE INVENTIONS AND APPARATUS PERTAINING TO AUTOMATIC SPRINKLERS OF

Frederick Grinnell, William Neracher, John Hill, William Kane and others.

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EXECUTIVE OFFICES, PROVIDENCE, R. I.

WHY THEY BRISTLE—

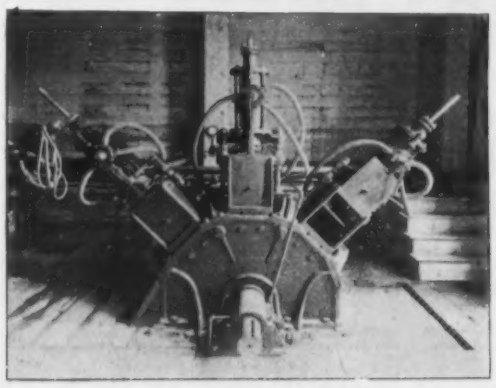
When one business man asks another for his trade, it is not sufficient to make claims—there must be reasons. That is one of the advantages of high grade goods — THEY FAIRLY BRISTLE WITH REASONS. In talking of them it is possible to stick absolutely to truth and yet appeal irresistibly to common sense. Our belting, packing, hose—in fact everything we make—is constructed of such material and in such manner that we can sell it by merely stating facts. We find our profit in making such goods — won't you find yours in using them?

Belting
Rolls
Packing
Gaskets
Water Hose
Steam Hose
Fire Hose
Deckel Straps

NEW YORK BELTING & PACKING CO. LTD

PIONEERS AND LEADERS, 25 PARK PLACE.

THE CEDAR POINT FOUNDRY, Port Henry, N. Y.,



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PAPER AND PULP MILL MACHINERY.

The Jeffers Suction Screen.

Made in three sizes: 8, 9 and 10 Plates.

IMPROVED WET MACHINES.

Three-Pocket Wood Pulp Grinders.

The Only Builders of a Steam "DRAG SAW."

GATE AND PRESSURE VALVES A SPECIALTY.

FIVE-WAY OR DOUBLE PRESSURE GRINDER VALVES A SPECIALTY.

Send for Blue Prints. Orders promptly filled.

Hydraulic Power and Manufacturing Company, in the gorge, which has developed 7,000 electrical horse power and for which the James Leffel Company supplied the turbines, was started up last Saturday, and everything worked satisfactorily. Arthur Schoellkopf the managing director of the company, entertained a large number of his Buffalo and New York friends on Monday, and showed them over the works. Among them was Col. George E. Gouraud, the famous English capitalist, who has purchased the Cataract House and the International Hotel and proposes to erect on their sites an electrical palace hotel which will astonish the world.

W. E. T.

LOCKPORT, N. Y., November 26, 1896.

Thanksgiving Day found Lockport as busy a hive of industry as one would want to see. It was really inspiring to see the way Superintendent Eihlers, at the Lockport Pulp Company's mill, was pushing matters along. The recent rains and west winds have given plenty of water in the canal, and consequently the pulp mills have had all they wanted. The time will be soon at hand when the improvements on the canal will begin, and then the water will be shut off and the mills will close down. Every grinder is running to its full capacity. "There is not so much of encouragement in doing all this," said Manager Raymond, "when prices are at the present stage, but I suppose we will have to keep up with our competitors and we can stand the strain as long as they can."

The pleasing news comes that the Tuscarora Pulp Company has been resurrected and is being put on its feet again. It will be remembered that Senator T. E. Ellsworth, of the Traders Paper Company; Jesse Peterson, president of the United Indurated Fibre Company; Frank N. Trevor, of the Trevor Manufacturing Company, and W. T. Ransom, with Thomas M. McGrath, of the Cascade Pulp Company, were interested in this project. The site had been selected on Eighteen Mile Creek, just a little above the Rome, Watertown and Ogdensburg Railroad, and a mile from the lake. Here there is a fall in the creek sufficient to develop 500 horse power, and when the plans of the company are perfected it is hoped to obtain even more than this. Mr. McGrath has the practical part of the work in hand, and has been looking over pulp machinery. He has visited Rochester and inspected the new Eilers grinder of the Challenge Grinder Company. Mr. McGrath has also negotiated for his pulp wood, delivered at Olcott, the mouth of the creek, at $5 a cord. It will come from Canada. Arrangements have been made with the railroad to run a spur along the top of the bank, and the company will load the pulp from its mills onto the cars.

The Traders Paper Company is very busy. It is said that it is refusing orders for less than carload lots. This speaks volumes for a young mill, which usually is willing to take any orders which come handy. It is certainly complimentary to General Manager A. H. Ivins, who has thus captured the market by the excellence of his output. In Mr. Boggs, as superintendent, the Traders has an ideal man, and the establishment of this successful industry in Lockport is a source of pride to all citizens.

One could write a whole page on colors as connected with the output of the Niagara Paper Mills. I was certainly astonished when President Howes incidentally let me look over his color book. This mill has produced no less than eighty-five different colors within a year in the output of the various novelties which it has fathered in the paper market. The trade have come to recognize that in colors this mill cannot be beaten the world over. The different methods of securing and making these colors are all noted in the color book, which is considered one of the most valuable belongings of the mill.

The latest achievement in this line of the Niagara Mills was shown by Mr. Howes. This is the "Jewel" cover paper. The trade is thoroughly acquainted with the famous "Defender" cover paper, but the "Jewel" promises to eclipse even the "Defender" in the delicacy and tinted variety of colors in which it is manufactured. These papers are turned out in antique and plate finish. They have, or the company claims for them, superior folding and embossing qualities. The company is now sending out attractive sample books, the colors being guaranteed as fast and fadeless.

The Niagara Mills are also turning out a very superior grade of paper used by railroad companies for time tables. It has a splendid finish and is very strong. It runs about 60 pounds to the ream.

All through the Lockport mills I found trade looking up. There is one thing of which the paper mills complain, and that is prices. Although orders are plentiful, there is not that stimulating effect noticeable in market quotations. The commission houses and wholesale dealers go to the manufacturer and keep asking for a lower figure on their orders; when they get it they sell just so much lower in order to find a ready market. When they order again they do not ask to place a carload lot at the same figure, but invariably ask for a closer figure than on the previous lot. This is what is so discouraging to the manufacturer. I know of some companies which have held meetings and discussed this matter, and some have declared that they will not try to take orders in which there is absolutely not a cent of profit. If everyone in the trade would strive to maintain prices on an equitable basis there would be a fair profit to everyone concerned, even if the consumption of the product was somewhat curtailed.

W. E. T.

HOLYOKE.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., November 26, 1896.

This is the day which all true New Englanders honor and observe, wherever they may be—the annual Thanksgiving.

The mills are all shut down to-day, and the employers and employees are at leisure to seek recreation in their several ways. It is a welcome break in the monotony of everyday life.

There is very little that is new regarding business generally. The mills are all running as usual, but they are not as yet all on full time.

The feeling in business circles continues to improve, and although orders are not increasing materially in volume there is a better demand for paper, and manufacturers are feeling considerable encouragement in regard to the future.

The creditors of the Hadley Paper Company will meet on Saturday and listen to the report of Assignee Randall, after which action will be taken on the matter. It is probable that the company will be obliged to wind up its affairs.

We have a smallpox case in a local block, but it has no connection with any paper mill. The victim recently came to Holyoke from Connecticut.

A deal has recently been consummated whereby Edgar S. Bliss, now with the Mittineaque Paper Company, has secured a controlling interest in the Worthy Paper Company, of West Springfield.

Mr. Bliss, who was formerly connected with the Hampshire Paper Company, at South Hadley Falls, has bought 700 of the 1,000 shares of the company's stock.

It is understood that Mr. Bliss' brother-in-law, Charles H. Southworth, of Springfield, is associated with him in the purchase of the stock, and that Mr. Bliss will be treasurer and general manager of the Worthy Paper Company.

The plant is valuable, the company having been organized in 1871 with a capital of $100,000. George L. Wright, of Springfield, is the present treasurer.

Our wide awake little suburb across the river—Willimansett—recently organized a board of trade, and is reaching out after industries. Overtures have been made to the Coburn Trolley Track Company, of this city, to remove its plant over there. The company is considerably cramped for room, and it is understood that Springfield parties have been negotiating with the company with a view to its removal to that city.

The Coburn Trolley Track Company has just placed five of its tracks in the Nonotuck Paper Mill. The company has many orders on hand.

H.

FOX RIVER VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., November 24, 1896.

The revival of business which has been mentioned as in progress in this valley continues its beneficent course, and things look more pleasing daily to the manufacturers. Some report that the business improvement is slow, but nevertheless very apparent, and others say that they are finding it much more decided and quick in coming than they expected. There is more business doing in all lines; orders are more freely placed, and jobbers write in some cases that they are now willing to do something about carrying a little more paper in stock than they have been disposed to do in the past. It is felt that the tendency will be for prices to stiffen a little as time goes on; rather, at least, than go the other way.

As the mills all along the river have practically all of the water they want at present, the Neenah and Menasha Water Power Company has decided to make no increase this week in the amount drawn from the lake. All of the pulp mills are in operation, even those which have not been running for, lo! these many months. The pulp made last spring was not all exhausted, and a large supply in addition will be laid in during the continuance of the present high water season. The weather for several days has been very mild and sloppy, with rain and wet snow, and considerable water is all the time finding its way to the natural channels where it can be applied to useful purpose.

It is expected that before very long the two machines at the mill of the Combined Locks Paper Company, which have been idle for some little time past, will be put in motion again. Business now begins to justify it. Two machines have been going all of the time and two others are standing idle. The company intends in the spring—in case the times continue to improve—to make provision for any possible low water time in the future by putting in some steam engines. It is probable that at first only two engines will be put in, and connected up in such a manner as to be used for operating the paper machines, as it is felt that there must always be water enough for running the other machinery of the mill, as the mill controls all of the water of the river at the place where it is located. The company's great pulp mill is at present being run at full capacity, with sixteen of the largest grinders.

The toilet paper mill of the John Hoberg Paper Company at Green Bay went into operation again last week under the management of the assignee, Peter Reuter. It is stated that the mill has a quantity of orders on hand, and that it is probable that its difficulties will ere long be satisfactorily adjusted.

The affairs of the Paul Paper Company, at Menasha, continue to be badly involved, and no determinate move has yet been made. Assignee John Strange says that the liabilities of the company amount to about $60,000, and the assets consist of the plant and about $2,100 worth of manufactured and unmanufactured stock and accounts. The value of the plant is the principal thing. Former Manager Paul says that the mill has cost $90,000, while Assignee Strange says he will sell it for $35,000. The stockholders have apparently given up all interest in the company, and are letting things take their course about as they will.

Reports from Ashland are to the effect that the mill of the Ashland Sulphite Fibre Company is turning out 10 tons and upward of sulphite fibre a day, and is doing a prosperous business. The mill is new, replacing the old one which was burned, and things are in even better condition than before for the successful prosecution of business.

The contract for the lighting apparatus for the new mill of the John Edwards Manufacturing Company has been awarded to an Appleton firm. It calls for an installation of 325 incandescent electric lamps and eight arc lamps. The arcs are something new for institutions of this character. The dynamo will be of a capacity of 500 lamps, so that increase may be made if deemed advisable.

A. D. Drewson, of New York, a brother of Dr. Drewson, who was here some time ago, has been in this valley of late on business connected with the Drewson reclaiming system for sulphite mills, whereby gases from the digester which would otherwise go to waste are saved and put to useful purpose again. Mr. Drewson has made a contract with the Kaukauna Fibre Company, and is about to close one with the Nekoosa Paper Company for putting in the Drewson system at the mills of these two companies. The system has been in use for some time with the best results at the mill of the Riverside Fibre Company in Appleton.

The new Pusey & Jones digester which was put in at the mill of the Kaukauna Fibre Company, has been in operation for about a week, and the trial has given satisfaction to the company. The capacity of the digester is about 3 tons of fibre per day. The capacity of the plant has been further increased by adding another ring, 3 feet in length, to one of the old bronze digesters, making the digester 24 feet long. The total increased capacity thus obtained is about 4 tons per day. The company is this afternoon starting up its new Allis compound engine, which is in future to furnish more economical power for the mill.

D. W. Casley, of Xenia, Ohio, was in the valley last week calling upon the manufacturers.

Silas Wright, of New York, is in town on his first visit to the valley for a year past. He reports business better here than he had expected to find it, and thinks that compared with other places the Fox River Valley is "all right."

General Manager A. L. Smith, Jr., of the Manufacturing Investment Company, arrived in Appleton last night, coming from the company's mill at Madison, Me., where he has been busied for several months past.

Sidney Benedict, of the Shattuck & Babcock Company, De Pere, who has been ill for several weeks with pneumonia, and is now convalescent, has gone to Daytona, Fla., where his parents reside, with the expectation of expediting his complete recovery.

Jos. Thomas has left Appleton and gone to his old home in Platteville for a visit and a little more recuperation before resuming his duties with the Nekoosa Paper Company.

J. D. Witter, of Grand Rapids, and Robt. McMillen, of Oshkosh, are in Appleton today on business connected with the Fox River Paper Company, in which they are large stockholders.

FOX RIVER.

American Machinery for Japan.

It has been told in these columns that certain Japanese paper manufacturers have been in the United States of late, buying machinery for paper making purposes. Several years ago an entire plant was bought in this country, and since then other orders have followed. These purchases were made after close inspection of the machinery manufactured in Europe, on the Continent and in the United Kingdom.

The two most recent Japanese visitors to this country are H. Okawa and M. Onodera, whose portraits, in connection with that of F. X. Black, of the Black & Clawson Company, are herewith presented.

H. OKAWA. F. X. BLACK. M. ONODERA.

Mr. Okawa has bought two 100 inch and Mr. Onodera one 112 inch of the latest improved, fast running Fourdrinier machines manufactured by the Black & Clawson Company.

A Legal Issue.

In an interesting decision handed down on Wednesday in the Supreme Court Justice Gaynor decides that an invoice of goods sent to purchasers has not the same effect as a bill, and that suit cannot be brought and that interest does not start until the statement is sent to the debtor and reaches his hands. No decision of this kind has been made before, and the matter is one of interest to business men generally.

An action brought by the Goulds Manufacturing Company, of Seneca Falls, maker of hydraulic pumps and general steam fitters' supplies, against Munkenback Brothers, of this city, plumbers and retail dealers in the same materials, was instrumental in bringing up the question. The defendants had dealt with the plaintiffs for a period of ten years, the account always running on. In some way a bill of $170 slipped payment, no statement having been sent to the purchasers. That was two years ago. Upon the discovery of this recently the Goulds company forwarded the missing bill. After investigation Munkenback Brothers sent them a check for the amount of the bill. This the Seneca Falls concern returned as unsatisfactory, demanding $22.40 additional as interest. The present suit followed the Munkenbacks' refusal to pay the interest claimed.

The case came up for trial before Justice Gaynor and a jury last week on the question of the defendants' liability to pay interest. Proof was put in by the defense that no statement of account had been sent to them and they claimed that custom required the receipt of a statement before interest could begin. The jury returned a verdict in favor of the defendants, and the plaintiffs made a motion for a new trial through their counsel, Henry Marshall. T. Ellett Hodgskin, of Wingate & Cullen, tried the case for Munkenback Brothers. Counsel for both sides argued the motion at length and submitted briefs. Justice Gaynor has refused to grant a new trial, finding that the jury's verdict was correct. He says: "An invoice accompanying goods is subject to correction, viz., as to price, by return of goods, &c. I think a custom was established that a bill follows. I think the case is the same as though no invoice had been sent. A bill should have been sent or a demand made in order to start interest. Motion for a new trial denied."

The case will probably be appealed in order to test Justice Gaynor's decision.

In Town.

F. G. Weeks, Skaneateles, N. Y.; S. S. Stevens, North Hoosick, N. Y.; C. E. Callender, Glendale, Mass.; B. D. Rising, Springfield, Mass.; H. T. Bartow, Boston, Mass.; G. H. P. Gould, Lyons Falls, N. Y.; T. T. Waller, Piercefield Falls, N. Y.

General Notes.

President J. C. Chamberlain, of the Union Publishing Company, publisher of the Bridgeport (Conn.) *Union*, has been appointed receiver of the company upon his own application. A reorganization will probably be effected.

Judge B. F. Hall, at Middletown, has assigned December 16 for the hearing of the case of the First National Bank of Portland for foreclosure on the estate of E. F. Bigelow, Portland, Conn., publisher of the *Observer*, the *Scientific Magazine* and the *Daily Tribune*, and for an order of sale. The trustees of the estate are opposing foreclosure in the interests of Mr. Bigelow, but the creditors are with the bank.

The sheriff has made a levy at the office of the American Association, which has a collection agency and printing establishment at No. 178 Fulton street, New York, on an execution for $1,997 in favor of Frederick H. Lawrence, the president. It is said that the judgment was to establish a claim for money due, and that the company is solvent.

The Essex Paper Company, manufacturer of pads, &c., Holyoke, Mass., has voted to increase its capital stock from $15,000 to $30,000, and officers have been elected as follows: President, Thomas M. Cleary; treasurer, P. J. Judge; secretary, D. F. Cleary. These, with J. H. Preston and Frank Bartlett, are the board of directors.

At the annual meeting of the Consolidated S. O. S. Bag Company, held at the offices of the company in New York, the following named officers were elected: President, Leverett Brainard, Hartford; vice-president, F. W. Leinbach, Bethlehem, Pa.; secretary and treasurer, George R. Bond, Plantsville; general manager, Lucius V. Walkley, Plantsville; directors, Chauncey Marshall, of New York; L. Brainard, of Hartford; F. W. Leinbach, of Bethlehem, Pa.; C. H. Wool, of Bethlehem; Lucas C. Clark, of Plantsville; E. B. Cowles, of Boston; Thomas M. Waller, of New York; J. Herbert Botts. It was voted to pay the dividend December 1. A fairly prosperous year for the company was shown by General Manager Walkley, and the stockholders were given a report of the number of bags made and printed last year.

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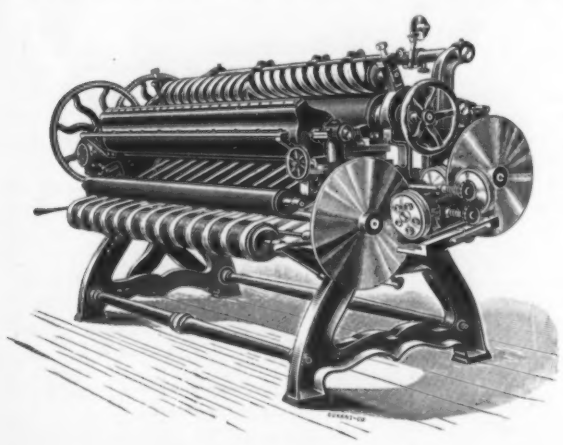

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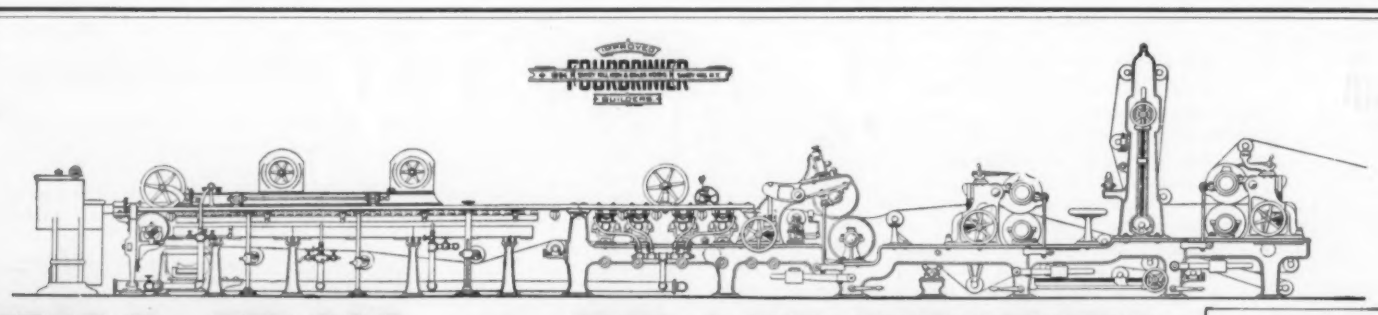

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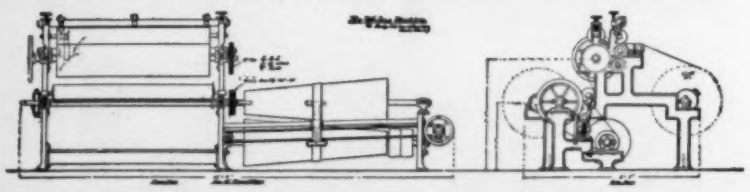

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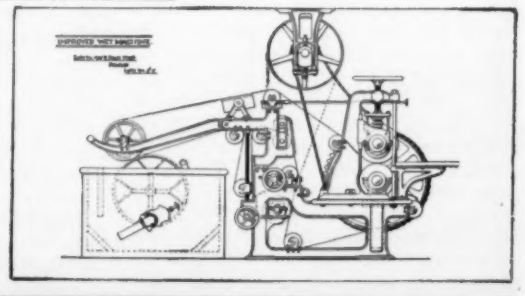

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CONTENTS.

INTRODUCTION.

General Laws of Chemistry; Principles of Chemical Physics; Chemical Arithmetic.

PART I.

General Chemistry.—With a short account of each element and its principal compounds; source, manufacture and properties of such compounds as are used in paper making.

PART II.

CHAPTER I.—**Cellulose.** Its chemical and physical properties, chemical relations and reactions.

CHAPTER II.—**Fibres.** Cellulose in its relations to the plant, the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, adansonia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres; growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock, antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Resin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

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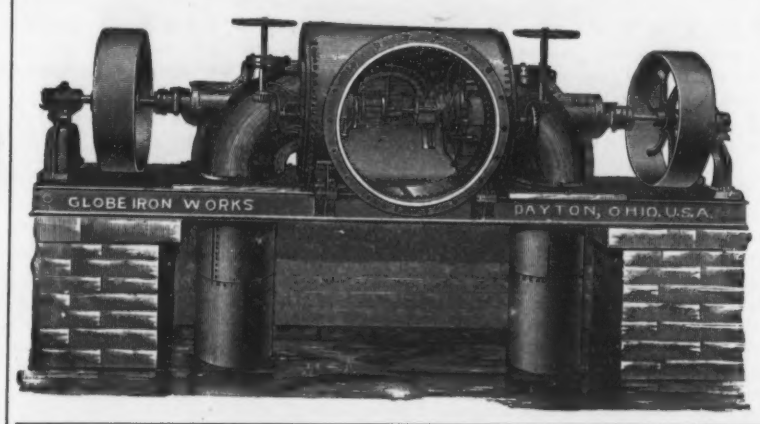

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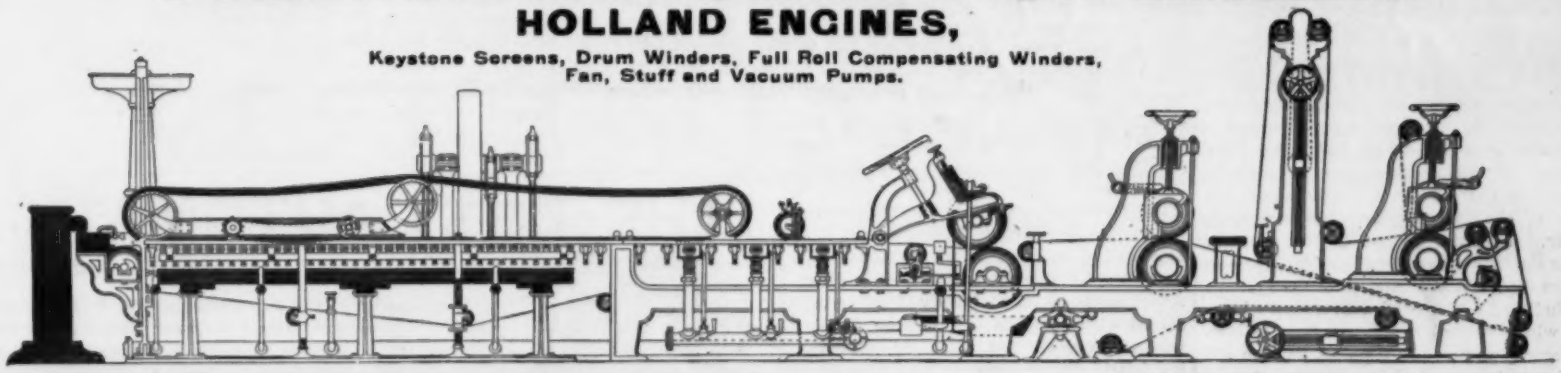

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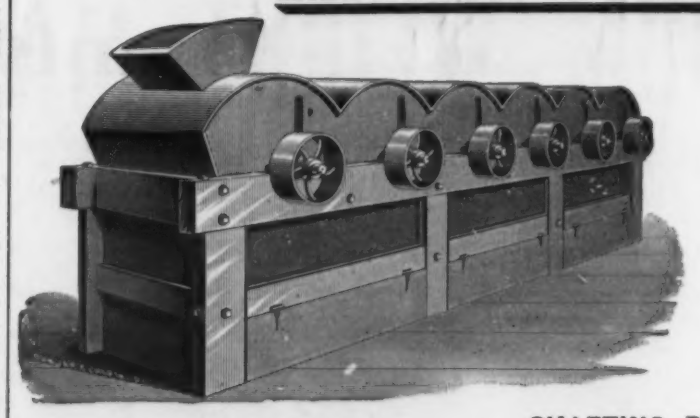

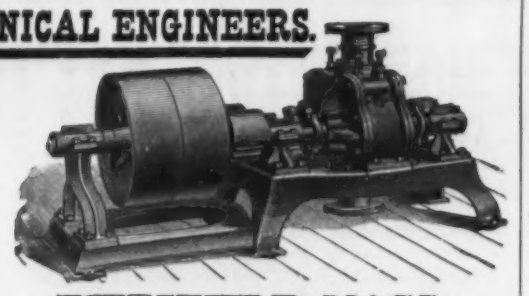

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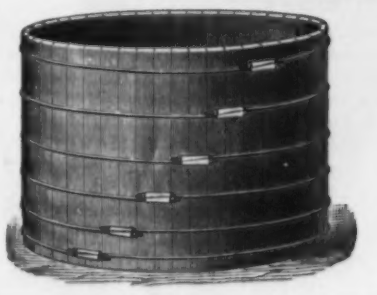

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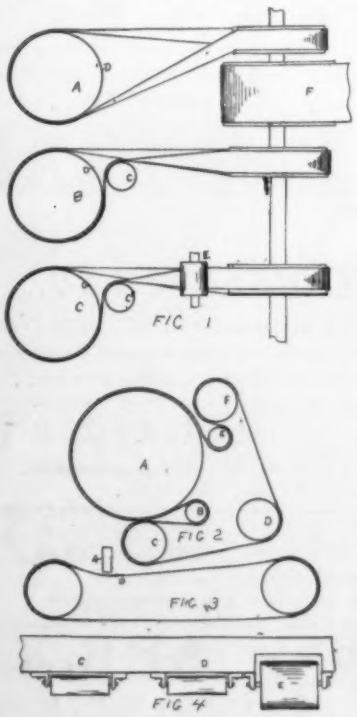
Talks on Belts.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By M. W. Danielson.

Instead of procuring the very best belting some managers think more of the price and discount than of the quality, and it is no wonder that the mill or shop uses up more belting lace or other fasteners than it ought. On some drives much oil is used, and that of the most injurious kind. Then the dust and flyings of the room, in the very thickest of which they run, weaken their hold upon the pulleys, for which reason they must run tighter than would otherwise be necessary. The result is that belt drives sometimes fail to give satisfaction.

The quarter twist system of running belts is always severe upon the leather, as the belt usually pulls off the driven pulley at an angle, bringing considerable strain on one edge of the belting, and in time the edges split and work open, requiring a new belt. This is shown in Figure 1 at A, D being the driver. To overcome this unequal strain upon the belt as much as possible without disturbing the general arrange-



Complicated Belt Drives.

ment of the system an idler can be put on as shown in B.

In this D is the driver and C the idler pulley. By using this plan the belt is caused to pull on the tight side, and the edge of the belt is much relieved from strain. In order to put to test some of these systems a heavy belt and pulley were put on the shaft at F, and all of the systems (including C) were tried with a view of seeing which worked best. The best results, as regards power, non-slipping, ease on the leather and general efficiency, were obtained from system C. This way requires two idlers, as in C, where D is the driver and C′ and E are idlers. When this system is set correctly quarter belt drives can be run effectively and without damaging the edges of the belts.

How much depends on the quality of the material and make of the belts may be made apparent by illustrating the work required in a drive system recently inspected and exhibited in Fig. 2. This belt is about 24 feet in length, driven from the main pulley A by a 3 foot driver pulley, and transmitting the power to pulleys 6, 8 or 9 inches in diameter, to one idler pulley of about the same size, and to one of from 5½ to 6½ inches. These pulleys are marked B, C, D, E and F. How rapidly and suddenly the changes—and some of them are very violent—are made can best be seen by noting the turns at which the belt travels.

The great number of bearings, the close proximity of the belt to them, and the high speed at which many of the journals run render it essential that belts in such drives shall be of superior stock, firmly laced, and well taken care of. In such systems belts can be run up to only about 2,000 feet per minute with safety. They should be suitably long, so as not to strain journals or be hard on the brasses. It is economy and good business foresight to use good belts. Poor belts are dear at any price.

Experts are usually called to testify with reference to some particular acts of which men in general are not competent to judge, and are permitted to give opinions on matters concerning which their judgment is superior to that of men in other callings, because of a special line of education and experience. These experts, however, are sometimes at fault. I recollect an incident which proves this.

We had occasion to put in a large belt, and it so happened that it contacted with the floor beam A, as shown in Fig. 3. The expert on belting laid down the following as a rule and claimed that the belt would sag enough to clear the beam. When pulleys are 15 feet apart allow 1½ to 2 inches; when pulleys are 20 to 25 feet apart allow 2½ to 4 inches; when pulleys are 25 to 30 feet apart allow 4 to 5 inches. Although the belt sagged, the uneven power of the mill caused the belt to sway up against the beam at B, and this resulted in tearing off the laces and wearing the leather. We prevented the trouble by putting in a pulley (E) in the beam, like that shown in Fig. 4. The belt ran under this all right. We had first tried the small rolls, C and B, but they soon gave out by getting heated.

Sometimes very large belts run unevenly through causes which cannot be helped. With all of the advantages and knowledge of modern manufacture it is simply impossible to produce a large sheet of leather having an equal resistance and pliability. It may in length, breadth and thickness have been stretched and shaved and trimmed until there is no perceptible variation in those respects, but it will not be entirely uniform. Leather does not possess that characteristic naturally, and it is practically impossible to join together pieces of leather to make a very large belt which will be absolutely homogeneous in all of its parts. Every splice used in making such a belt increases its variability.

Extra large belts are necessarily composed of many pieces, none of which can be as long as the length of a side of leather, and many of them much shorter, as there must needs be some of nearly every portion of the hide rejected. The results in the firmer parts of the leather will be different from the softer and consequently more flexible parts. This is something which cannot be avoided, and the only thing to do is to run the large belts according to the best known principles.

The Electrolysis of Fused Salt.

The manufacture of sodium and chlorine, or sodium and bleaching powder, from fused salt direct seems so absurdly simple and easy that it is a very tempting problem, and if there were not very much more serious difficulties than appear at first sight, such a process as the simple electrolysis of melted salt would very soon oust all others. If a simple method could be devised sodium could be made at a few pounds per ton. It would be used in very large quantities for the reduction of aluminum, and for replacing iron in the making of cyanides for gold extraction. It would doubtless also be used in innumerable other processes where a cheap and powerful reducing agent could be employed. All this is, however, a small matter. Caustic and carbonate would be made from the metal. Instead of a ton of caustic soda a paper maker would buy 11½ cwt. of sodium, which he would convert into hydrate by treating with water. At present we need hardly trouble ourselves about means of treating sodium with water by the ton. It could, of course, be done. The hydrogen might or might not be utilized, and in some cases it might be worth while to get electrical energy by using the sodium in cells. This is unlikely, however, and we are not yet sufficiently near the economical manufacture of sodium to discuss its uses at length.

The difficulties in the way of the direct electrolysis of salt are enormous.

In the first place it must be fused. If it is heated by a furnace it must be in a suitable vessel. Most kinds of stoneware and earthenware are attacked by fused salt, and are also likely to crack. Iron is the most promising material, but in time it will probably oxidize and scale away. The cost of thick cast-iron pots, something like those used in finishing caustic, might not be excessive. It might be possible to heat the salt by the current which electrolyzes it. With a given fall of potential spent on the resistance of the electrotype, it is easier to keep a large vat hot than a small one, so this method can only be used economically on a large scale. The containing vessel may then be practically solidified salt.

The anode does not give any serious trouble. Carbon is practically indestructible in fused chloride of sodium, as even hot chloride has no action on it. If the salt contains any oxygen compounds, such as oxide of sodium, due to combustion of the sodium or sulphate of sodium, a carbon anode will of course be attacked and eaten away. The chlorine that comes off must be kept within some sort of hood, and this gives rise to a new difficulty. Red hot chlorine, if one may use such an expression, is not at all convenient to handle on a large scale. Perfectly dry chlorine is said not to attack metals, and sodium will keep a bright surface in contract with dry chlorine. But though the chlorine from red hot salt must be fairly dry, it attacks metals at once. No metal can be used as anode in fused salt, for instance, and after it has come off the chlorine will attack, say, an iron hood. There then is also difficulty in making good contact between the conducting lead and the anode, as the lead, being metal, cannot be in contact with the hot chlorine, and the carbon on the other hand must not be exposed to the air. On a large scale it is probable there will also be some difficulty in cooling large quantities of chlorine, as the chlorine must, of course, not be led into the bleach chambers already hot.

The cathode itself, of course, offers no difficulty. Iron or perhaps copper can be used. Sodium, however, floats on fused salt. The surface round the cathode must therefore be covered in, and the sodium either collected or poured off, or distilled over. To distil sodium needs a fairly high temperature, which, other things being equal, is a drawback. A still greater drawback is that the sodium does not distil clean, but comes mixed with salt vapor, and the sodium and salt are condensed together, making a mixture which is difficult to treat.

The chief difficulty as regards the cathode is the hood. Such materials as porcelain are attacked by sodium or sodium vapor; so sodium must not come in contact with them. If iron or copper is employed, as soon as there is a layer of sodium on the top of the salt it makes contact between the cathode and the hood, and the further liberation of sodium is on the outside of a hood, where the metal burns. This not only means waste, but the oxide formed dissolves in the fused salt, and finally burns the carbon anodes. Porcelain hoods have been tried. Many kinds of stoneware or fire clay will stand fused salt well enough; but it does not follow that it will stand in an electrolytic vat. Apparently at the temperature of fused salt it conducts enough to be practically electrolysed. Poincaré gives the conductivity of hot porcelain as about a hundred-thousandth of that of fused salt. It may also be partly attacked by the rather mysterious subchloride of sodium which is supposed to be produced. Such a compound may reduce silicates, just as sodium does. Borchers has proposed or used chamotte, which is, I believe, stoneware made of old fired stoneware, ground up and mixed with new slip, and again fired. I do not know what success this material secured. Another proposal is to use porcelain hoods both for the anode and the cathode, and to prevent any action by keeping them cool by water circulation. The hood is then coated at all vital points with a casing of cold solid salt, which is an insulator, and protects the porcelain from all attacks on the part of the salt, electrolysis, sodium, or sodium subchloride. Still the close proximity of melted salt, red hot sodium, chlorine and cold water, with nothing but porcelain to separate them, must always be discouraging to a workman whose life is not insured. When all the difficulties so far mentioned have been successfully surmounted there is still another drawback, and that is that probably there will be no sodium. If a small current density is used no sodium will appear. It was most likely phenomena that led the earlier experimenters to suppose that fused electrolytes conducted without decomposition, like metals. What really happens it is very difficult to say. It is generally supposed that the sodium forms a subchloride, but a subchloride of a monad element is a little difficult to believe in. Photographers are on very familiar terms with subhaloids of silver, so we must not be too skeptical about subchlorides of sodium. If the cathode is watched in a cell of fused salt the liquid appears to be violently disturbed, and luminous red streaks come from the cathode. This looks rather as if sodium was being carried in clouds of small particles into the mass of the salt, and these combined with the salt with evolution of the heat. If salt is taken from the neighborhood of the cathode and cooled, and examined through the microscope, it is found to be full of black specks. On adding water there is effervescence. This looks as if the sodium was not in the form of subchloride in little metallic globules. The luminous clouds may be merely cloud globules of hot sodium, the high temperature being due solely to the enormous current density in the immediate neighborhood of the cathode. The presence of sodium or of particles that may be assumed to be sodium in the cooled salt does not show that they exist at the higher temperature. It is possible that subchloride of sodium exists at the temperature of melted salt, but splits up into normal chloride and sodium on cooling. Lithium, if heated in contact with lithium chloride in a closed vessel, disappears, apparently forming a subchloride. The subchloride of lithium has even been investigated as regards its fluorescent properties. Chloride of sodium acted upon by cathode rays in a vacuum tube gives off subchlorine and turns orange or bluish, and subchloride is said to be formed. Lithium chloride is said to be decomposed in the same way.

It is possible that sodium is not actually deposited against or on the electrode, but in the immediate neighborhood only. If mercury is used for the cathode in a strong solution of a lead salt, and a large current density is employed, it will be found that lead trees grow on the surface of the mercury. Mercury amalgamates clean lead at an enormous rate—so fast that if you agitate the cathode by touching the cell trees several inches long will disappear into the mercury so quickly that the eye cannot follow the movement. If the surface of the mercury is watched it will be seen that the lead is always beginning to form trees, but they are rapidly sucked in by the mercury. It appears as if the lead is not deposited into or really in contact with the mercury, but is thrown down into its immediate neighborhood, and is then amalgamated by the mercury. If this is the case it may account for the small yield of sodium from fused salt. It is possible the sodium is deposited in very small globules in the immediate neighborhood of the cathode, and that a large proportion of it is swept away by the surging salt, and is eventually burnt on the surface of the electrolyte, or turned into salt again at the anode.

The melting point of salt is reduced in practice by adding other chlorides, such as that of calcium, to the bath. Of course only those chlorides can be used which do not deposit metals more readily than salt. It is quite possible that a little calcium is deposited with the sodium, but it is so difficult to make sodium commercially by this method that an inventor would feel quite encouraged if he obtained any sodium to speak of, even if it were largely contaminated with calcium.

The difficulty, as regards the collection of sodium, has been overcome by Vautin in a very ingenious way. He uses a cathode of fused lead. According to Borchers, whose works are a veritable mine of information, this idea is old, as Rogers deposited sodium into lead and zinc in 1886-89, and published an account of his successful results. Vautin has gone further than this, however. The lead-sodium alloy is in connection with a second vat, to which steam is admitted. This takes out the sodium, and if the steam supply is properly regulated pure fused caustic is produced, and has only to be run into drums and sold. This arrangement overcomes a great many of the difficulties inherent in the electrolysis of fused salt. There is no difficulty in collecting the chlorine, as the sodium does not also rise to the top of the vat.

Lead sodium alloy is available for many of the purposes for which plain sodium is employed. It would probably not pay to use it for getting aluminum, as the electrolysis and substitution would probably cost more than the simple electrolysis of the cryolite and alumina bath. It is available for the production of cyanides from potassium ferro-cyanide. As sodium has a lower combining weight as well as a lower price than potassium, sodium cyanide is, on the whole, preferable to potassium cyanide, and it is, I believe, just as good in gold extraction. It must be practically entirely ionized in the very weak solutions used in leaching gold ores, so the metal can hardly make any difference. As potassium cyanide is estimated by its cyanide, the metal being assumed, the use of sodium in the reaction with the prussiac of potash gives a cyanide which tests at over 100 per cent. This has astonished not a few analysts, but is pretty generally understood now.—*Paper Makers' Monthly Journal.*

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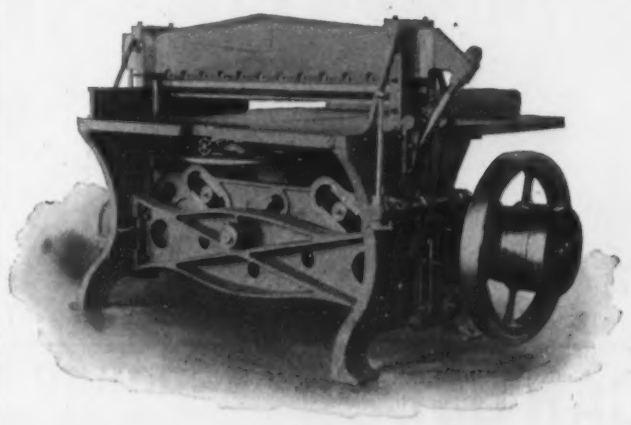

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Commercial Law Points.

(CAREFULLY COMPILED FROM THE LATEST DECISIONS OF THE HIGHEST COURTS.)

The Interstate Commerce Commission is not clothed with power to fix rates of freight.

Parol evidence is admissible to show a modification of a written contract after its execution.

A mortgage is a mere incident to the debt which it secures and passes with the transfer of the debt.

The receipt of money due on a judgment by an officer authorized to receive it will satisfy the debt.

A note given for money advanced for use in speculating in "futures" is void, as growing out of a gambling transaction.

An employee is not bound to inspect premises for latent defects which render the place where he is working dangerous.

In legal contemplation, a merchant is insolvent when he is unable to pay his debts as they fall due in the usual course of business.

An agent intrusted with the collection of a debt can receive payment in money only, unless authorized to receive payment in some other mode.

A principal is not liable for the act of his agent who in endeavoring to collect a debt makes a willful and malicious assault on the debtor.

Damages recoverable for breach of a contract of shipment must be such as might reasonably have been contemplated by the parties when the contract was made.

A machine which contains all of the essential elements, or their equivalents, of a patented machine infringes the latter, regardless of mere differences of form.

A partner cannot recover of the firm for the value of services rendered to it in excess of those rendered by the other partners in the absence of special agreement.

A regulation of a carrier requiring consignees, on notice of the arrival of a car, to unload it within four days, or pay a certain rate, is a valid regulation.

A railroad company is bound to accept goods destined to a point beyond its line, consigned to or routed over a particular connecting carrier, and to deliver them to the second carrier.

A purchaser of goods from a seller who disposes of them with intent to defraud his creditors is not chargeable with notice of such intent merely because he suspected the seller's bad faith.

A traveling agent who transmits an order for goods to his house, the latter shipping the goods and sending the bill direct to the customer, has no authority to collect payment.

The measure of damages for the nondelivery of goods where there is no market from which the merchant can supply himself with the goods contracted for is the actual damages which he has suffered.

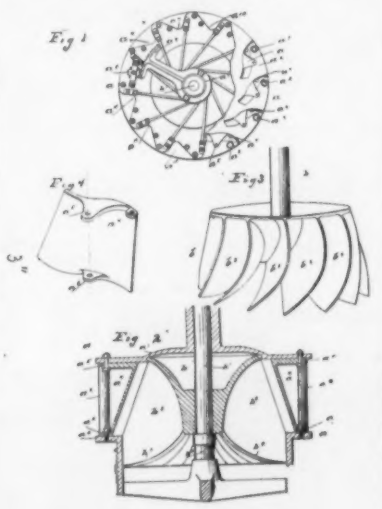
Where leased premises are vacated by a tenant before the expiration of his term the fact that they were relet by the landlord will not relieve the tenant from liability for damages unless it is shown that the landlord consented to the surrender.

A principal must disaffirm the unauthorized act of his agent within a reasonable time after such act comes to his knowledge, or he will be bound by it, and he cannot adopt the beneficial part of such contract and reject the remainder of it; he must ratify all or none.

It is negligence to allow a doorway into an elevator shaft from the hallway of an office building to remain open and unguarded, and a party injured by walking into the same can recover damages for his injuries from the landlord or owner of the building.

Water Wheel.

An illustration is given of an improvement in turbine water wheels, the object of which is to provide a wheel the construction of which is such that a large volume of



WATER WHEEL.

water may be used and discharged with a wheel of small diameter, operating economically and effectively with a wholly or partially open gate.

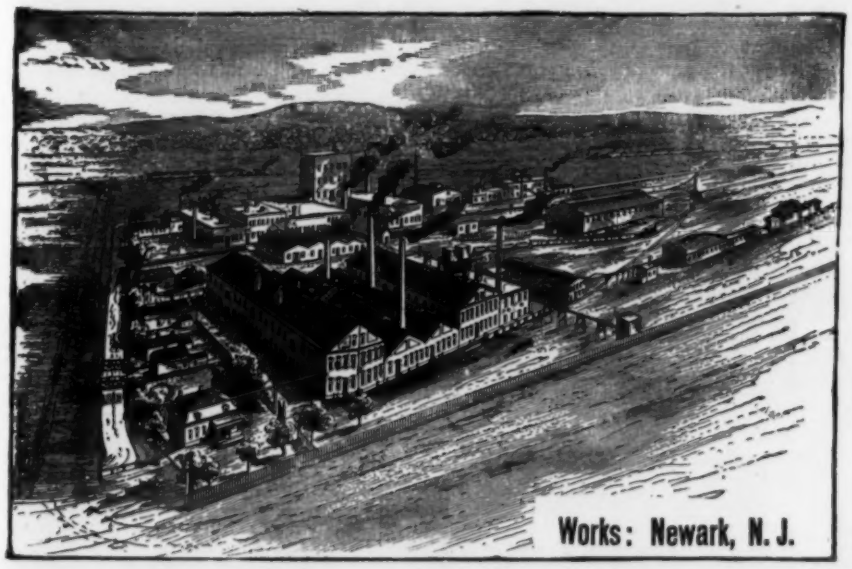
Figure 1 is a plan view of the wheel; Fig. 2 is a sectional elevation; Fig. 3 is a perspective view of the wheel removed from the casing, and Fig. 4 is a detail view of one of the gates.

In its general construction this wheel does not differ materially from other wheels now in use—that is to say, it consists of an inner running wheel having a suitable number of buckets, and an outer casing having gates through which the water is admitted to the buckets, and means for opening and closing the gates. Its principal feature is in the shape of the wheel and of the gates which admit the water thereto.

a a represent the outer casing, which is formed in the usual way with a top plate, a', and a bottom ring, a^2, the bottom ring being adapted to form a cylinder into which the lower ends of the wheel buckets are fitted. The top plate a' and the lower ring a^2 are bolted together in the usual manner by standards, a^3. The wheel b is journaled within the outer casing and provided with the usual shaft b', which extends through the casing in one direction and is supported at the opposite end by a step, b^3, in the usual manner. The buckets b^2 are preferably of steel and cast into the wheel proper, although this is merely a mechanical feature which or may not be employed. The outer edges of these buckets b^2 are formed on an incline, so that the wheel in its entirety has the shape of a truncated cone, the buckets being curved to form the proper surface for receiving and discharging the water, and being open from top to bottom with no intervening obstacle to interfere with the free discharge of the water therefrom, the discharge opening from each bucket being on a curved line, as indicated at b^4, whose length is equal to or substantially equal to that of the inclined edge which stands opposite to the gate or supply opening.

The gates are oscillating gates of the butterfly type, so arranged that the rear end of one gate closes against the front end of another. These gates, however, instead of being arranged at right angles to the inclosing plates a' a^2, are arranged at an incline to correspond to the shape of the wheel. These gates are shown at a^4, and each gate is provided at the top and bottom with projecting lugs a^5 a^6, adapted to receive suitable bolts or rods on which the gates are pivoted, the upper lug being extended outwardly so that the pivotal centre thereof stands in line with the pivotal centre of the lower lug. These gates are operated to open and close uniformly through the agency of a suitable ring plate, a^7, by a pinion, a^8, engaging a gear segment, a^9, in the usual manner. The longitudinal portion of the lower ring a^2, which, it should be stated, is provided with lateral and longitudinal flanges, is bored out to form a cylinder in which the wheel buckets are adapted to fit. This cylinder is formed at a different angle from the upper portion of the casing, being preferably straight or at right angles to the lateral plates which support the gates, being at right angles, or substantially so, to the axis of the wheel, the buckets being correspondingly shaped. This construction permits the buckets to fit at all times closely with the cylinder at their outer peripheries and prevents leakage of the water at this point, which is not changed by any wear on the step and the consequent movement of the wheel longitudinally in the casing.

Inasmuch as the upper portion of the inclosing casing immediately around the wheel is considerably smaller than the lower, while it is necessary to have the upper plate extended in order to secure these plates together by the standards a^3 at a point beyond the gates, the upper plate is provided with a series of notches or recesses, a^{10}, at the points opposite the openings between the gates, so as to more readily admit the water through the gates at this point.



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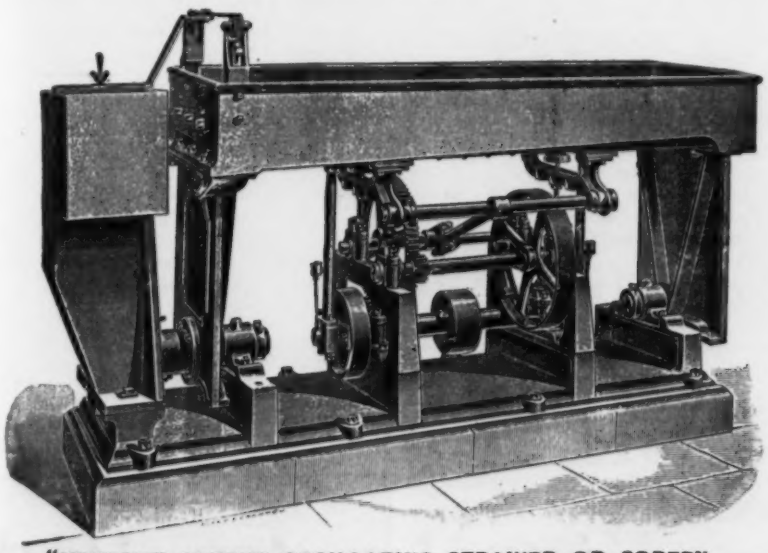
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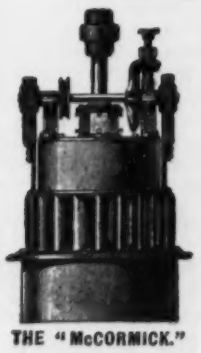
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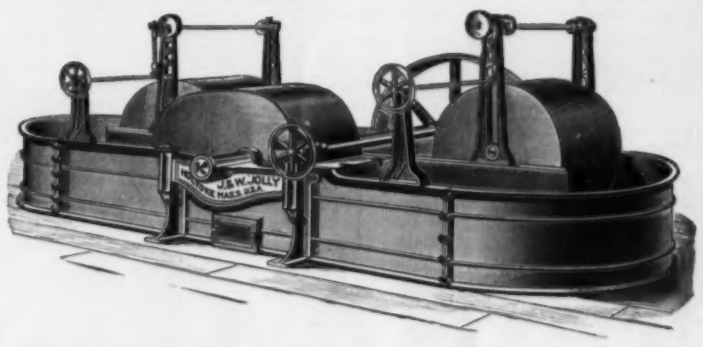

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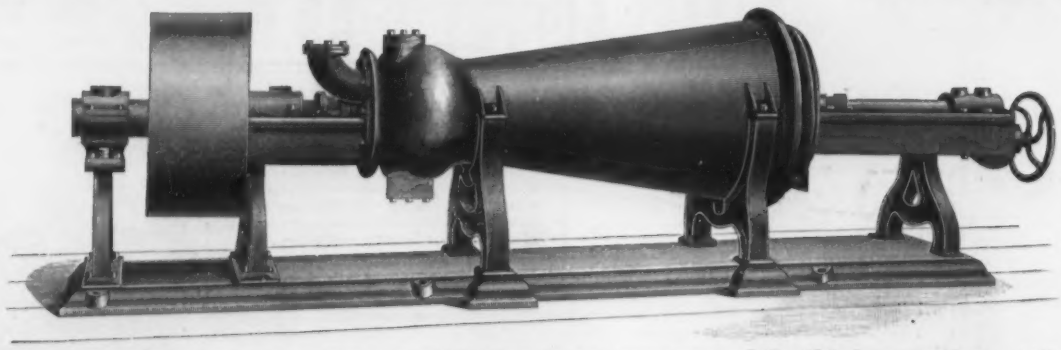

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Electricity Direct from Coal.

A lump of cannel is burning on the grate. What takes place? The air is drawn in beneath the grate and rises through the bars. Its oxygen combines with the coal to produce carbonic acid gas, which, together with the inert nitrogen of the air and the smoke or unconsumed carbon, rises in the chimney and escapes. This is the rôle played by the materials. How about the forces? The chemical union of the oxygen with the coal sets free the coal's stored up energy, and this energy, being indestructible, must manifest itself in some way, and so shows itself as heat. This is the whole story of combustion.

Sitting before an open fire I have often dreamed of converting the stored up energy of the coal into some form of energy even more useful to man than heat. We know that, theoretically at least, all of nature's forces are interconvertible; why should not the potential energy of coal be converted directly into electricity instead of into heat? Could all of the energy be extracted from a single pound of coal and made to do mechanical work, this work would more than equal a day's labor of a very strong man. In the great coal fields that are distributed over the surface of the earth nature has stored up a supply of energy safely estimated to equal the hand labor of the entire population of the world continued for a thousand years.

The most convenient and useful, because the most tractable, form of energy is electricity. In the facility with which we may at will and without waste convert it into such other form of energy as happens to be desired, lies the superiority of electricity over all the rest of nature's forces. Having electricity, we may easily produce heat or light, or mechanical motion, or chemical force; but electricity itself has hitherto been produced in quantity only by the use of complicated mechanism and with great waste.

Electricity is to-day generated by a dynamo that is turned by an engine which is operated by steam, and the steam is made from water by means of heat derived from the combustion of coal. But this is a long and circuitous process, with a large leakage at every step. Much of the energy of combustion goes up chimney as heat or smoke; much of the heat is lost in boiling the water to make steam; much of the expansive force of the steam is wasted as it escapes from the engine; much of the power of the engine is wasted as friction, and there is some loss in the dynamo itself. Recent tests made by a committee of the National Electric Light Association, of eighty modern electric light and power plants, show that the average plant wastes 97.4 per cent. and utilizes as electricity only 2.6 per cent. of the energy theoretically obtainable from the coal.

The problem then was to convert the energy of coal more directly into electricity, to do away with the dynamo and the steam engine, possibly even to do away with heat itself.

A multitude of experiments were made. In the earlier days my attempt was merely to do away with the dynamo and with steam, and convert heat into electricity. A fire of coke, burning on an insulated grate, gave some slight electrical manifestations, but they were not encouraging. Experiments with various novel forms of thermopile were tried, but a consideration of the theory of the subject soon made it evident that it was not even theoretically possible to convert more than a very small percentage of the energy of the coal into electricity in this way. The generation of electric currents by alternately heating and cooling the magnetic cores of wire coils gave no promise of efficient results. I tried nature's plan of producing lightning—the evaporation of water and continual dissipation of vapor globules—and though I succeeded in producing miniature thunder storms, the quantity of electricity obtainable was not sufficient for any commercial use. Indeed, my researches have led me to doubt whether the total energy of a good, brisk thunder storm, dramatic as is its display, is equal to the energy radiated from a bedroom fire. For a minute fraction of a second the force of a stroke of lightning is terrific, but its duration is so brief that, even if it could be harnessed, it would be capable of doing very little useful work. Many other plans, all of them intensely interesting from a purely scientific point of view, were tried; but from most of them no current was obtained that was economically capable of being put to any industrial use.

Nature is a coy mistress, yet she likes to be wooed, and to the diligent suitor gives occasional tokens of encouragement, and it happened that one day I surprised her in her secret, and discovered the way by which we may abandon even combustion and heat itself, and convert the stored up energy of coal directly into electricity.

It came to me almost as a revelation that if the oxygen of the air could be made to combine with the coal under such circumstances that the production of heat could be prevented, and at the same time a conducting path could be provided in which a current of electricity might develop, the chemical affinity of the coal for the oxygen would necessarily be converted into electricity and not into heat, for any given form of energy will be converted into such other form as the surrounding conditions make most easy. Given the proper conditions, the potential energy of coal would rather convert itself into electricity than into heat.

This led to experiments in which coal was submerged in a liquid so that the oxygen of the air could not come in direct contact with the coal and produce combustion. Further, such a liquid was chosen that when air was forced through it to the coal, the oxygen of the air would temporarily enter into chemical union with the liquid, and then be crowded out by a further supply of oxygen and forced to combine with the coal. We may picture each successive atom of oxygen, on its way from the source of air supply through the liquid to the coal, as temporarily entering into chemical union with each of a row of atoms of the liquid, just as each successive man as he circles around in the "grand right and left" of dancing temporarily clasps hands with each of the ladies of the set. When one substance passes through another in this way it furnishes a path in which an electric current may flow, so that by causing the oxygen to combine with the carbon through the intervening liquid opportunity is furnished for an electric current to develop, and since combustion cannot take place the chemical affinity of the coal for the oxygen is converted directly into electricity and not into heat. Liquids which thus allow atoms of oxygen and a current of electricity to pass through them may be called "electrolytic carriers."

—*Dr. William M. Jacques, in Harper's Magazine for December.*

Fig. 1

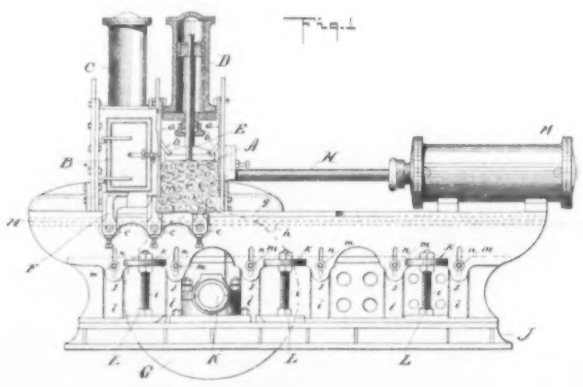


Fig. 2

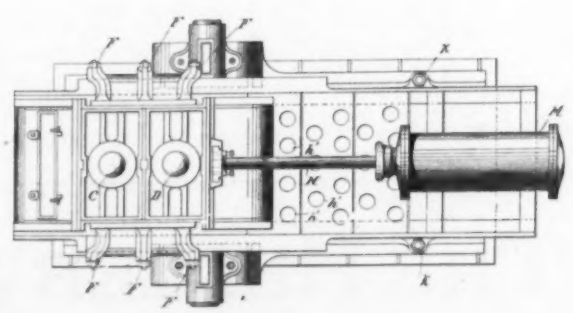
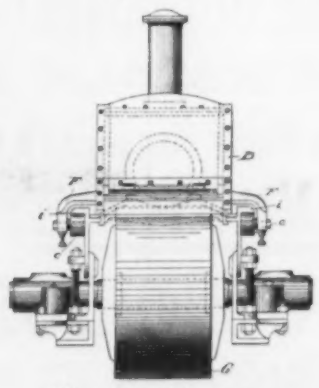


Fig. 3



WOOD PULP MACHINE.

Wood Pulp Machine.

The accompanying illustrations show the details of a new wood pulp grinder, Figure 1 presenting a side elevation, partly in section; Fig. 2 a plan view, and Fig. 3 an end elevation of the machine.

In this machine the pockets A and B receive the wood, which is placed with the grain running across the stone at an angle to the direction of rotation, provided with the usual power cylinders and with pistons for each pocket. The pockets are carried upon brackets F F, which are provided with rollers *c c*, which take under flanges *i i*, which constitute the edges of the traverse table and serve as anti-friction rollers to enable the pockets to be traversed across the face of the stone with as little friction as possible. G is the stone which projects through an opening, *g*, in the traverse table H. This traverse table is provided with a nose, *h*, and with depending slotted lugs *j* and perforated lugs *k*. J is the base of the machine, which is provided with a bearing, K, for the shaft of the stone G, and with upwardly projecting standards, *l*, through which bolts pass, *m*. The bolts *m* also pass through the slots *n* in the lugs *j* of the table and assist in holding the table in its adjusted positions.

Mounted in the base J and passing through the lugs *k* of the table are adjusting screws, L. These adjusting screws serve to adjust the table up and down, to regulate the grind of the stone, for it will be obvious that by projecting the stone to a greater or less distance through the table the depth and direction of the grinds may be regulated.

Mounted upon the table H is the power cylinder M, whose piston, N, is connected to the pocket A, which is connected to the pocket B, so that both pockets are moved back and forth over the table H and the face of the stone by the movement of the piston N in its cylinder, M. On referring to the plan view it will be seen that the table H is perforated, as at *h' h'*, for the passage of pulp.

The operation of the machine is as follows: The stone being in rotation and the pockets charged with wood, the grain running transversely across the stone, the pistons E press the wood downward on the table, and the piston N causes the pockets to be moved back and forth across the stone. As the pocket B is brought up to the stone the stone will begin to grind the wood therein, and as the pocket is pressed forward as the stone grinds successive portions of the wood in the pocket will be brought in contact with the stone, so that the stone will make a grind of a certain depth across the pocket, the same action occuring as the pocket A is brought across the stone. When the pockets are drawn back across the stone to their initial positions, the action is repeated so that by continually moving the pockets back and forth and feeding the wood forward in the pockets the wood is fed to the stone from two directions simultaneously; that is to say, horizontally and vertically. It will be observed that the stone acts on only a small portion of the wood at a time in making this planer grind.

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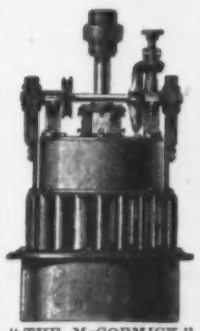

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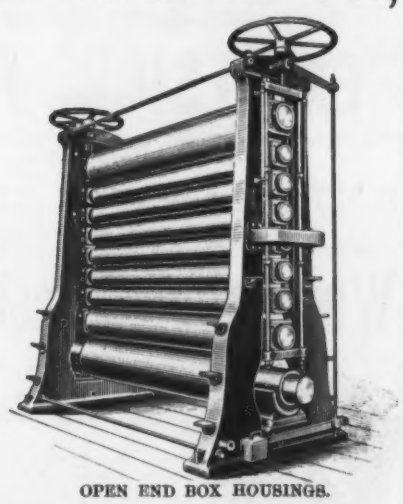

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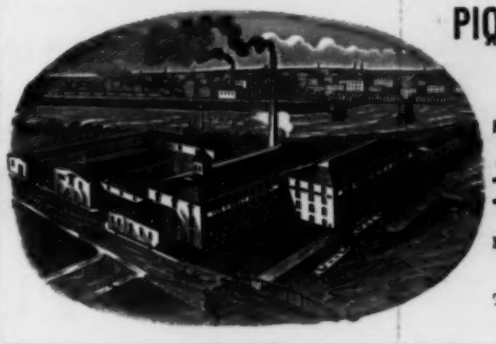

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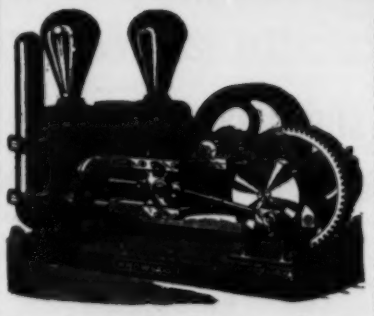

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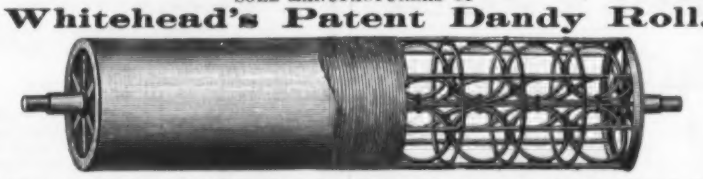

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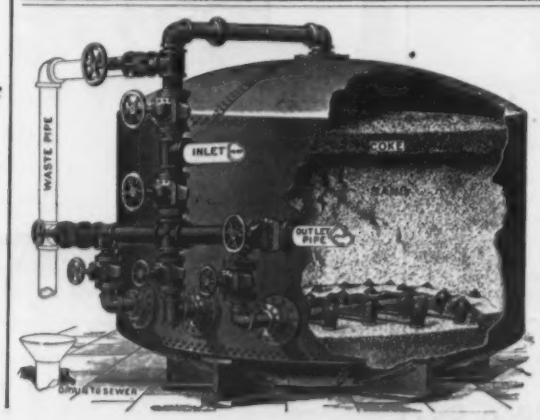

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